FINANCIALTIMES

No. 29,407

Tuesday August 28 1984

Best may already be

GENERAL

N-cargo salvage plans begin

Two salvage companies, one Dutch, one Belgian, were given the task of recovering 30 containers of manium becalluoride, a radioactive gas, 10 containers of veride, 2 radioactive gas, which were on board a French-owned cargo vessel which sank off the Belgian coast on Saturday.

Owners of the Mont-Louis, which was carrying 225 tonnes of radioac-tive material to the Soviet Union, said that two to three weeks would be needed for the salvage work. Earlier the French Government had urged a rapid salvage.
The two companies given the

task are L'Union de Remorquage et de Sauvetage of Belgium and Smit Kat International of Holland.

Bangladesh strike

A nationwide strike against martial law in Bangladesh virtually para-lysed most cities. Police said 50 people were injured in clashes between opposition and government supporters in Dhaka.

Gandhi campaign

Mrs Gandhi's roling Congress (I) Party to India has launched a campaign to extricate itself from a constitutional row over the dismissal of former film star Mr N. T. Rama Rao from the job of Chief Minister of Andhra Pradesh, Page 3

S. Africa protest

Thousands of Indian students boycotted classes in South Africa in protest at elections today for a new parliament. Police reported vio-lence in townships near Pretoria. Namibia talks, Page 3

Tanker attacked The Panamanian registered tanker

Cleo I was set on fire in a rocket attack in the Gulf. The raid appeared to be Iranian retaliation for an Iraqi attack on another tanker last Friday. Page 2

Sharon wants Jordan

Former Israeli Defence Minister belonged to Israel and would me day be settled by Jews, an Israeli newspaper reported. Coalition bid, Page 2 Ariel Sharon said Jordan rightfully

Trial to resume

Hamburg court rejected a defence contention that the six judges in the "Hitler Diaries" case were not quali-fied to give journalist Gerd Heidemann a fair trial because of previous publicity. The trial resumes to-

Shuttle tries again

.

100

Service State

Discovery, the third U.S. space shuttle, is due to make its maiden voyage tomorrow. Two attempts in June were stopped by mechanical

Oil concessions

Egypt signed four oil exploration concessions with U.S. and British companies worth a total of \$201.7m. The agreements cover offshore areas in the Gulf of Suez, the Mediterranean and the desert east of

Syrian disquiet

Libya's agreement on a "state of union" with Morocco appears to have badly strained relations with its firmest Arab ally, Syria. Page 3

Prague celebration.

Soviet Defence Minister Dmitry Ustinov flew to Prague to represent the Kremiin at celebrations marking the 40th anniversary of an anti-Nazi rebellion m Slovakia.

'Arkaeology' find

Rocks and decayed wood from Mount Ararat that biblical archaeologists hope are remnants of the U.S. for laboratory analysis, an

BUSINESS

Arco to write down \$785m

ATLANTIC RICHFIELD oil group of the U.S. said it would suffer quarter from its metals and miner als operations. It also plans to repurchase 25m shares, about 10 per cent of its issued equity.

CURRENCIES continued to trade quietly within the European Mone-tary System last week. Activity slowed as the dollar lost direction and there appeared to be little incentive to take out new positions before the dollar gains fresh impe-tus. French interest rates touched a 3½ year low, but the Bank of France

rate unchanged. Belgian rates were also a little easier and although the

Belgian franc was as little weaker overall, it was placed comfortably

within its divergence limit.

ing. Section II

year. Page 2

August settlement was \$348.60.

FRENCH borrowing abroad this

year is running at a considerably faster pace than the Government bad anticipated. Page 2

WEST GERMANY'S chemical in-

NEGOTIATIONS between the Phil-

credit have reached a critical phase

as pessimism deepens over the

country's long-term economic pros-pects. Page 3

THAILAND launched an interna-

tional advertising campaign to encourage new bids of up to \$500m, to

double capacity at the Thai Oil Refining Company near Bangkok. Page 12

PROPOSALS for a multi-year re-scheduling of Mexico's public sector

debt will be sent to its credito

banks early next month, Mr William R. Rhodes, Citibank vice-chair-

man, said after "substantial pro-

gress" was made at negotiations over the weekend. Page 12

Production difficulties in London

may have resulted in typographical errors in unit trusts, some adver-tisements and elsewhere in today's

more than 2% ner cent



to force a boardroom showdown, suggesting he would step down if the present senior management The boardroom hattle has been

Peugeot chiefs in boardroom battle to control group

BY PAUL BETTS IN PARIS

AN INTERNAL battle over the running of Pengeot, France's largest private enterprise, has erupted at a crucial moment for the troubled car company, which is pressing ahead with large-scale redundancies in its efforts to cut losses.

M Jean-Paul Parayre, group chairman, has called a board meeting next week to resolve an internal dispute with M Jacques Calvet, former chairman of Banque Nationale de Paris (BNP) who is now in charge of the day-to-day running of Peugeot's entire car operations, em-bracing the Peugeot, Talbot and Cit-

M Parayre was angered by French newspaper reports yester-day suggesting that he was about to resign and make way for the ap-pointment of M Calvet to head the

man of the Peugeot group in 1977, was appointed for a new four-year term only last April. He bas, how-ever, found it difficult to work with M Calvet, who was brought into the group in 1982 and has increasingly nadowed M Parayre. M Parayre has therefore decided

the division of power increasingly strained relations between two men of different temperament and style.

M Parayre, 47, has been one of the main architects of Peugeot's expansion as a volume car producer through the acquisition first of Citroen and then of Chrysler's European operations, subsequently renamed Talbot

He has inevitably carried the blame for the difficulties of digesting Chrysler's European operations financial problems. The group lost FFr 2.58hn (\$294m) last year and FFr 3.79bn the year before. Its total debts amount to about FFr 45hn. However, M Parayre also

launched the company's recovery programme in 1979, involving more than 50,000 layoffs between 1979 and 1982 and the rationalisation and streamlining of the group's industrial operations. He is also credited with the success of the Peugeot 205 supermini model and the Citro-

running of the company with M Pa- the group as a whole.

simmering for several months as personality renowned for his strong temper - has been at the centre of the group's latest effort to cut fur-ther its French workforce. M Calvet, 52, has led negotiations with the Government and the trade unions for the large job reductions at Talbot and Citroen

Although the Talbot layoffs led to a serious labour conflict, M Calvet successfully negotiated with the Government nearly 2,000 redundancies at Citroën. However, those redundancies are expected to become and Peugeot's subsequent serious a test case both for the pro-communist CGT union and the socialist Government. The CGT has called workers to reject these redundancy plans when the Citroen factories re open this week after the summer

The Government, the car comp ny and the unions all want to avoid a repeat of the Talbot dispute, which led to violent clashes at the Talbot plant of Poissy near Paris at the beginning of this year.

Peugeot, which managed to re duce considerably its losses in the However, since he was brought in first half of this year compared with three years ago to help Peugeot to the same period last year, has arput itself into order financially, M gued forcefully that the redundan-Calvet has rapidly risen to a posi-tion where be virtually shares the recovery of its Citroco branch and

rayre.
The former banker - a forceful Ford and Jaguar expand, Page 12

More UK ports defy national strike call

BY OUR LABOUR STAFF IN LONDON

THE CHANCE of Britain's second The chart shows the two constraints on European Monetary System exchange rates. The upper grid, based on the weakest currency in the sysnational dock strike of the simmer turning into a fiasco was in the halthe Transport and General Workers which no currency (except the lim) Union (TGWU).

The lower chart gives each curren Failure by the union would leave the National Union of Mineworkers cy's divergence from its "central rate" against the European Curren-cy Unit (ECU), itself a basket of Eu-(NUM) looking increasingly Isolated in its dispute with the National Coal Board (NCB) and the Govern-WALL STREET: The Dow Jones industrial average closed down 8.81 at The transport union called the

1.227.92 Section II strike on Friday after British Steel started to unload a coal ship, the Ostia, at Hunterston, west Scotland. TOKYO: Nikkei-Dow market closed 5.06 higher at 10,568.72 in light trad-Dockers refused to handle the coal in sympathy with the miners. The union has denied that the strike is political, and said it was STERLING was unchanged in New DOLLAR advanced in New York to DM 2,8855 (DM 2,86725), FFr 8,8680 (FFr 8,8025), SwFr 2,407 (SwFr-2,381) and Y241.95 (Y240.75). called because of British Steel's use of "scab" or strike-breaking labour. GOLD lost \$1.05 in Zurich to \$348.50. In New York the Comex

Crucial mass meetings will be held at several ports today. The strike is solid at all Scotland's 12 ports which use registered dockers, and at Liverpool, Fleetwood, Hull and Tilbury. Men at two ports -Grimsby and Immingham on Hum- strike. berside - voted on Sunday to con-

ance last night after two more ports Bristol - important ports in the naworking.

Mr Sam McVeigh, Northern Ireland union docks official, said his members felt that the strike was "not so much about protecting dockers' jobs as about supporting the miners." Another factor was that it was only six weeks since the last strike (which lasted 11 days) over the use of non-registered dock labour by British Steel.

Container traffic will flow freely to the European continent if - as seems likely - most of the roll-on, roll-off ferry ports such as Dover, Folkestone, Portsmouth and Felixstowe stay open. Dover will not hold a mass meeting until Friday.

The TGWU plans to picket work-

ing ports, possibly with the support of miners. The pickets may be thinly spread if more docks reject the

25th week, efforts are under way to

Employers believe that at today's try to set up a meeting between meetings there is an even chance leaders of the Trades Union Conthat dockers at Southampton and greas (TUC) and the NUM which would seek to avert a damaging voted to defy the strike called by tional dock labour scheme - will resplit over support for the miners at the Transport and General Workers ject a strike. Another scheme port, the TUC's annual congress next Thousands of demonstrators are

expected at the congress, In Brigh ton on the south coast of England.
A meeting before the congress between the TUC and NUM is still possible, although the miners' union has not agreed to a request from the TUC to bring forward a meeting of the union's national ex ecutive planned for Thursday.

Mr Peter Heathfield, general sec retary of the NUM, will speak to Mr Len Murray, TUC general secre-tary, this afternoon after consulting members of the miners' executive.

There is no hint as to whether the NUM is prepared to compromise on and physical support being given to it by other unions without strings. Mr Arthur Scargill, the miners' president, said at the weekend that it would be a betrayal if the TUC In the miners dispute, now in its gave less than financial support.

Industry braces itself, Page 5

IMF head warns of disorder amid debt growth

By Reginald Dale, U.S. Editor, in Washington

MR JACQUES de Larosiere, managing director of the International Monetary Fund, issued a warning yesterday that the unprecedented explosion" of public debt could lead to worldwide economic and finan-

cial disorder.

The cumulative growth of public lebt since the 1970s, if not checked, "could bave far-reaching consequences on the very fabric of our society," he told the congress of the International Institute of Public Finance in Innsbruck. Government could no longer avoid "difficult choices on action to cope with the

problem," he said. Mr de Larosiere called for a "con sensus" to halt the exploding, most-ly domestic, public debt of the Western industrial countries. In the seven largest industrial countries, be said, the ratio of public debt to gross national product (GNP) had risen from an unweighted average of 22 per cent in 1974 to 41 per cent

"in my judgment, that growth is unsustainable over the long run," Mr de Larosiere said. "Thus, either it is stopped by co-ordinated and rational policies or it will be stopped as in the past, by a new burst of in-flation with all the social, political and economic disarray that accompanies it. What is at stake here is monetary stability, and the sound ness of institutions."

Mr de Larosiere said that to the extent that interest payments were growing as a proportion of GNP, other spending must be reduced or taxes increased by the same amount to keep the deficits grow-ing. The larger the increase in interest payments, the larger must be the spending cuts or tax increases.

Because it could soon become politically difficult for government to take such steps, it was imperative that countries did not wait to take the required corrective poli-cy decision. The longer they wait, the more serious the disease become and, while the medicine needed at this time may appear un-

palatable, it will surely be much more so as time passes," he said. No expenditure should be seen as 'untouchable' including social and relfare payments, Mr de Larosiere

On the revenue side, increases had to come "through the utilisation vices as well as through reforms of tax systems." No group must be "automatically insulated."

World economic woes, Page 10; Mexican debt talks, Page 12

Unitary tax move resisted in California

BY LOUISE KEHOE IN SAN FRANCISCO

operations in California have debefore the state Assembly would unfairly benefit their foreign competitors.

D 8523 B

conductor. Intel and several other Silicon Valley electronics manufacwhich companies are assessed for put us at a severe competitive dis-tax on their worldwide income. put us at a severe competitive dis-advantage," he said.

Under the pending legislation due this week, all multinational corporations will have the option to continue to be assessed on their worldwide income or to change to assessment of their U.S. income. Which choice a company makes will depend on how it is organised. where it does business and where

The U.S.-based multinationals that now oppose the tax reforms "Killing this Bill i have calculated that the unitary tax priority," he said. method will remain the best option for them, but that their foreign competitors will be able to cut their tax liability by switching to the secand option.

The chief complaint of the U.S.hased multinationals is that their foreign dividands, but not those of the foreign companies, would con-tinue to be taxed in California. deputy director of the California de-partment of finance in Sacramento. Another problem for many U.S. electronics and computer companies is that they have extensive op-

NINETY U.S. multinationals with erations overseas in countries that have been defined as tax havens cided to change their stance on the in particular Singapore and Malay reform of unitary taxation in the sia. Income derived from these op-state. They say that Bills coming erations would be treated as U.S. income for the purpose of tax assessment under the proposed legisla-

"This Bill seems grossly unfair," Hewlett Packard, National Semi Dr Gordon Moore, chairman of In-conductor, Intel and several other tel, said. He estimates that the proposed revisions would give foreign turers. They have long campaigned multinationals operating in Califoragainst the unitary tax laws under nia a \$250m tax break. That would

advantage," he said.
IBM, which has fought vociferously against unitary taxation in Florida and threatened to scrap plans for expansion in the state unless unitary tax laws were repealed, has also switched its position in California. Mr John Mercer, tax specialist at

National Semiconductor, says that the companies will mount a strong lobbying effort against the reform. "Killing this Bill is our number one

The companies have had little luck in persuading the legislators to amend the luws. "If they can bring me documentary evidence of how their competitive position will be affected, I would be glad to put it be-fore the Governor, but so far they have not," Ms Nancy Ordway, chief

Continued on Page 12

Electrolux to press for Zanussi accord

BY KEVIN DONE, NORDIC CORRESPONDENT, IN STOCKHOLM

deadlock in its bid to take over the coocerned. financially crippled Italian bome appliances manufacturer.

bank creditors.

He spent yesterday at the Porde-none headquarters of Zanussi in

ELECTROLUX, the Swedish elec- North-eastern Italy, and after meettrical group, is to meet the foreign ing regional politicians said that a bank creditors of Zanussi in Lon-meeting would be held tomorrow in don on Friday to try to break the Rome of all the Italian parties

A key element in the rescue is that Zanussi's foreign bank credi-The refusal of Zanussi's 24 for- tors should accept a su eign bank creditors to go along with write-down on the \$50m to \$65m of the terms of the rescue package their outstanding loans. The banks agreed with other major parties recently turned down Zanussi's after nine months of negotiations is original proposal that they should still threatening to jeopardise the take a 70 per cent lump sum in pay-

Mr Hans Werthen, chairman of Mr Lennart Ribohn, Electrolux Electrofux, said yesterday that he finance director, who will meet the hoped a compromise would be foreign banks on Friday, said the reached with Zanussi's foreign company would "come up with alternatives, but in principle these

Continued on Page 12

20th Edition JLW Property Index When deciding where to invest it is vital to have all the reliable, accurate information you can get. The quarterly JLW Property Index provides unbiased data on capital and rental growths as well as overall performance of a broadly based property portfolio. Available now on request from JLW Research Library, Mount Street. FUNDING AUCTIONS 103 Mount St London WIY 6AS England Telephone 01-493 6040, Telex 23858 Kent House Telegraph St Moorgate EC2R 7JL Telephone 01-638 6040 Telex 885557

dustry expects to boost production by 5 per cent in real terms this North Sea stakes may be sold ippines Government and the IMF on an SDR 615m (\$621m) standby

BY DOMINIC LAWSON IN LONDON

considering selling stakes in the ject. Balmoral field, the North Sea's Ho

a British yard.

It now appears that Sun Oil has written to a senior Department of Energy official saying that it is considering reducing its controlling 58 per cent stake to as low as 30 per Mr Ed Moneypenny, a vice-president of Sun Oil claimed that the idea behind such a disposal

would fit in with Sun Oil's general

strategy of not baving much mare

then a third of any oilfield venture

AT LEAST four oil companies are by disenchantment with the pro- tense scrutiny from the Depart

most controversial development er oil companies, Atlantic Richfield project. er oil companies, Atlantic Richfield of the U.S., and Britoil, are considof the U.S., and Britoil are consid-thought to rest on a more pessimis-tic assessment of the field's recompany, has been engaged in a in the field. Arco has a 3.5 per cent battle with the UK Department of stake, while Britoil holds 4 per cent tor, Sun Oil. Another UK oil company. Energy over its decision earlier this year to award an order for the field's £110m (\$144m) production platform to a Swedish, rather than proportionate amount of time to the project. In the case of Arco, the disposal will leave it without any North Sea oil development.

The Department of Energy's objections to Sun Oil placing the platform order in Sweden are based on its belief that it will be impossible for the U.S. company to honour a "gentlemen's agreement" to base at least 70 per cent of the £435m value of its acquisition of another Gerof the Balmoral development in the

ment of Energy's watchdog, the Off-However, it appears that two other oil companies, Atlantic Richfield Britoil's interest in selling is also

ny, Carless Capel & Leonard is also considering selling its 125 per cent stake in the field.

Although the project is unlikely to be very profitable, buyers are likely to be ettracted by the possibility of using the development costs as a shelter for tax incurred on oil production elsewhere in the North The West German oil company

Deminex acquired a 13.5 per cent stake in the field last month as part man company, North Sea Exploita-tion and Research. Deminex is thus Since Sun Oil's decision to award mooted as a possible buyer of the outside the U.S. He denied that the key contract to the Swedes, the unwanted stakes.

such a disposal would be motivated development has been under in-

Thai refinery to expand, Page 12

expedition spokesman said. - CONTENTS

International 2, 3 Editorial comment 10 Companies 14 Eurobonds 13 Financial Futures 26 World Trade 4 Int. Capital Markets 13

Sri Lanka: tourism down but World economy: perhaps the Technology: investment in Politics: for Republican tools for future chips 9 read Tory 10 Management: how redun- Lex: the clock stops on

Construction 21 Technology 9 Editorial comment: rifts in Aerospace Crossward 22 Unit Trusts 22-23 Correntcies 12 Weather 12 Sri Lanka; exams 10 Survey Section III

Men and Matters 10

French borrowing exceeds forecasts

By David Housego in Paris FRENCH borrowing abroad this year is running at a considerably faster rate than the government had originally

On unofficial estimates French institutions have already raised this year close to \$5bn (£6.2bn) or roughly the equalivalent to the Fin Ministry's target for the whole

The accelerated borrowing reflects the slower-than-expected improvement in France's trade deficit as well as a move by French institutions to take advantage of favourable market conditions to refinance existing debt on cheaper terms.

Foreign bankers said yester day they expected that the higher level of borrowing would continue as French institutions sought to refinanca existing nigh cost debt.

The slightly lnwer rates now available to French borrowers are the result of easier conditions in the float-ing rate market and of confidence abroad that the government is determined to stabiliso France'a foreign debt.

Figures released recently by the Finance Ministry showed that France's out-standing foreign debt (fresh borrowings less repayments) had risen by only \$1.9bn in the first half of the year to

According to the Organisation of Economic Co-operation and Development, France raised \$1.85m on the international markets in the first six months of the year. In the last two months, an estimated additional \$3bn of

new loans has been contracted. In the initial estimates by the Finance Ministry, France was expected to borrow some FFr 67bn in "authorised" fresh ioans this year com-pared with FFr 111bn last

These estimates were based on the trade deficit being reduced to FFr 25bn by the end of the year and on the current account descit being

eliminated. The trade deficit for the first seven months, however, has risen to FFr 23bn, while the current account deficit for the first six months stood at

Boost for Bonn chemical industry

BY JONATHAN CARR IN BONN

terms this year after a first half plates for printers.

performance which was still Chemicals sales revenue in

rose in January June by 7 per cent against the same period of last year, and would have been per cent higher but for the

toxic properties.

on labour

the other partners.

parliament.

Spanish talks

pact resume

By David White in Madrid

SPAIN'S Socialist Government and the Socialist-ied UGT trade

union, are trying to restore momentum to talks on a wide-

ranging two-year labour pact after a display of reticence by

Discussions with the main

union and employer organisa-tions resumed yesterday after an interval of more than three

weeks. No concrete progress was made in the early rounds of talks.

The Government, represented at yesterday's talks by Sr Joaquin Almunia, Labour Minister, is anxious to put an

agreement together by the end of next month before it sends its draft 1985 budget to

Sr Marcelino Camacho, the

The atoppages affected, among first time.

THE WEST GERMAN Government is prepar-

by the end of the year — governing the use of formaldhebyde, the chemical which has caused a major public dispute here.

Dr Heiner Geissler, the Health Minister, said the rules would be introduced irrespec-tive of the result of an expert report he expected in October on whether formaldehyde

Dr Geissler noted yesterday that the chemical, widely used as a preservative and disinfectant, was already governmed by many rules and recommendations because of its

By the end of the year the Government

would put before the Bundesrat (the upper house of parliament) tighter regulations to help ensure thatan excessive indoor conceu-

THE West German chemical other things, demand for paints industry expects to boost products for the duction by 5 per cent in real vehicle iodustry and for offset

performance which was still strong despite the strikes in the metalworking and printing sectors.

The Chemical Industry Association (VCI) said production to EEC states—especially by 14.4 per the first baif surged by 14.4 per the first baif surg up by 10 per cent to DM 40bn. Exports rose by 21.5 per cent to DM 36.1bn, thus carrying the export share of overall sales to

more than 50 per cent for the

Formaldehyde curbs planned

the association said.

Last week the "big three"

chemical companies — Roechst, Bayer and BASF — announced first-balf group pre-tax profits roughly double the level of the

tration of formaldehyde in the air could not

build up.
Later, tougher measures governing use of
the chemicals in hospitals and nt work places

were also forseen.
Dr Geissler rejected charges made last

week in some newspapers and by the Greens, the environmentalists' party, that he had covered up evidence proving formuldehyde

could cause cancer.

64 Portuguese companies

may face bankruptcy

The strength of the dollar same period last year.

was one factor belping the West German companies boost their foreign sales, but exports to EEC states—especially enlargement of capacity than on rationalisation and replacement of plant and machinery. Another DM 7bn would be spent on research and development.

A total of 547,000 people were employed in the industry in the first balf - 0.3 per cent fewer than in the same period of last year. However, the chemical companies have taken about 2,500 extra workers aince

West German deficit narrows

West Germany's current ac count was only narrowly in deficit last month, thanks to a big surplus on visible trade caused by a surge in exports, writes Jonathan Carr.

The federal statistical office said the current account—the sum of visible trade, services and transfer payments—was just DM 200m (553m) in the red, after a deficit of DM 3.2bn in June and one of DM 3.3bn in July, last year.

Exports increased sharply from DM 35.4bn in June to DM 39.45bn in July.

Despite the improved July

could cause cancer.

The ministers said several groups of federal experts had presented preliminary reports which came to different conclusions about formaldehyde as a possible cancer agent. He had therefore instructed the experts to produce a joint report by October.

Dr Geissler said he would act quickly on the basis of the report and stressed that the Government put health protection before economic interests. figures the cumulative performance so far this year is down on the results of last year.

Pipe corrosion may force reactor closure

BANKRUPTCY may be the large textile firms, small ship-only way out for 64 Portuguesa companies in such dire finan-companies. They have piled up steam generators of Sweden's large Ringhals 2 nuclear reactor is nearing an un-acceptable level and is likely to cause authorities to close the companies in such dire financial straits that their workers have not been paid for months.

The companies, led by Lisnave ahip repair yards, CIFA, an artificial fibre plant in Oporto, and CIVE, glass-makers in Leiria, have been singled out in a government report on 350 companies which have piled up debts in unpaid salaries, social security contributions and unemployment fimd obligations.

The 64, the report says, are potentially unviable. Propping them up with emergency funds unis and order replacement within a year, according to the state power board Vattenfall.

of three pressurised water reactors in Sweden, all of which were delivered by Westinghouse of the U.S.

Last year the board was forced to rebuild the steam generators in the Rangbals 3 and 4 units because of other

SKr 200m. Each generators contains about 3,000 pipes. Nearly 10 per damaged-the maximum allowed by Swedish nuclear regulatory agency guidelines.

By David Brown in Stockholm PIPE CORROSION in all three

A decision is likely to come before the end of the year, and the cost could reach the original SKr 1bn (£92m) purchase price. This summer, Vattenfall applied a protective coming to the steam pipes in an effort to slow the damage.

The 10-year-old unit is one

with better futures.

The problem of persistently unpaid wages has affected Portuguese families in indus-Similar problems have plagued Westinghouse reactors delivered in West Germany and the U.S., Vattenfall said.

design flaws at a cost of some

W. Germany rejects charges by Pravda

The West German Govern ment yesterday dismissed as "fantasy" charges by the Soviet newspaper Pravda that Bonn was carrying out an economic annexation of Austria, Reuter reports.

Yesterday's edition of the Communist party daily claimed West German businesses were swamping Austria with exports and infiltrating its entire economy by taking over hundreds of local companies.

This amounted to a "quiet

economic anschluss" (annexa-tion), it said, in reference to Hitler's occupation of Austria in 1938

U.S. productivity up Productivity by mon-farm private U.S. business jumped at an annual rate of 47 per cent during the second quarter, the Labor Department said yesterday, AP reports from Washington.

This was the sighth of reach This was the eighth straight

quarterly increase marking the longest string of gains in more than a decade, the department added.

Dutch budget

The Dutch 1985 budget pre-poses savings of more than Fl 10bn (£2.3bn) but also pro-vides relief ror industry worth vides relief for industry worth
FI 1.5hn (£357m) officials said
yesterday, Reuter reports
from Amsterdam.
The budget, finalised by tho
Cabinet on Friday, is not due
to be announced until September 18.

He Brand I sphere the Prime

Mr Rund Lubbers, the Prime Minister, said, however, that a planned cut in corporation tax from 43 per cent to 41.5 per cent or below was not in-

cluded in the budget. Afghan negotiations UN-sponsored talks aimed ultimately at the withdrawal of Soviet troops from Afghanistan moved into a new phase yesterday when the UN negotiator, Sr Diego Cordovez, began talks with both the Afghan and Pakistani Foreign Ministers, Renter reports from Geneva. So far, the contents of the talks remain

China jails radicals Eighteen members of an underground organisation opposed to the pragmatic policles of China's leader... Deng Klaoping have been jailed in the central province of Henan, Henan radio said, Reuter reports from Peking. The group were described as supporters of the disgraced "Gang of Four"

Sikhs arrested NEARLY 60 Sikhs have been arrested in Punjah State since the hijack last week of an Indian airliner by Sikh extremists, according to the Press Trust of India, Reuter reports from New Delhi.

Greek-owned tanker hit by missile off coast of Qatar

of two previous strikes by Iran this month, and marks the third attack in five days by Iran nr Iraq in the continuing Gulf conflict

Gulf conflict.

Local shipping officials are apprehensive that the increasing frequency of the air raids could generate a reaction from Lloyd'a nf London concerning war-risk insurance.

The Cleo I was on her way from South America to Ras Tannoura oil terminal in Saudi Arabia. For her owners, the Troodos shipping company in Praeus, it was the aecond ship in a week to become the target

A GREEK-OWNED tanker, the Amethyst, owned by the same 35,730 dwt Cleo I, was hit by a company, was attacked by missile fired by an unidentified aircraft, thought to be Iranian, off the coast of Qatar yesterday.

The area has been the scene of two previous strikes by the Clost Iranian owned to Levan Island.

Bank

The Cleo I was said yesterday to have brought the fire on board under control, and was making for Doha, using emer-gency steering. A U.S. warahip was on hand to provide assis

Oil traders in the Gulf believe that the Iraqi strategy of hitting Iran-bound shipping is socceeding in depressing Iranian oil exports. Exports are now thought to be only 12m barrels a day and buyers are pressing for larger discounts.

Piracus, it was the accond ship in a week to become the target of an attack.

Lest Friday, the 53,060 dwt the fall in sales.

Peres meets Shamir in new bid for coalition

BY DAVID LENNON IN TEL AVIV

form a Government, began his second round of ottempts to form a coalition by meeting Mr Yitzhak Shamir, the outgoing Prime Minister, last night President Chaim Herzog gave

the Labour Party leader an additional three weeks, mainly because of the alliance which Mr Peres bad been able to form with Mr Ezer Weizman's three-aeat Yahad Party last week.

MR SHIMON PERES, Israel's the right-wing and religious Prime Minister-designate, who parties, was granted a 21-day extension on Sunday of his mandate to

Because the outcome of last month's general election made it difficult for either of the big parties to form a narrow coalition, Labour and Likud have been negotiating for the past three weeks on setting up a broad-based Government of national unity.

The Peres-Shamir meeting is thought to have concentrated with Mr Ezer Weizman's threeaeat Yahad Party last week.

Yahad's move into the folios which Labour would give
Labour camp has made it virtually impossible for Mr issues still outstanding are the Shamir's Likud bloc to form a future of the Jewish settlements new Government, even with the support of its natural allies in overtures to Jordan.

Violence flares in Beirut

A GUN-BATTLE involving Lebenese Army soldiers in Beirut and a deepening crisis between President Amin Gemayel and Mr Walld Jumblatt, the Druze leader and Minister, have raised concern about the faste of the Government and the truce in the capital, Nora Boustany reports. Four soldiers and one civilian were wounded in a four-hour shoot-out on Sunday in the centre of Beirut between army regulars and Moslem gumment the first such violation of a Syrian-sponsored ceasefire. This

ire. This coincided with a sharp attack by Mr Jumblatt against the

The Druze leader made his remarks during a funeral ceremony for Maj-Gen Nadim

FINANCIAL TIMES, LISPS No. 190640 published deily except Sundays and holidays. U.S. subscription rates. \$42000 per enum. Second class postage paid at New York NY and at edditional multing offices. POST-MASTER: send address changes to: FINANCIAL TIMES, 14 East 80th Street, New York, NY 10022.



This advertisement appears as a matter of record only

Workers' Commission leader, urgently considered, has described prospects for agreement as "very difficult" include several medium and

New Issue August 27, 1984

tant to go on supplying crutches to industrial lame ducks and

anxious to concentrate its modest resources on companies

Dresdner Finance B.V.

U.S.\$ 250,000,000

U.S.-Dollar Floating Rate Notes 1984/1992 with Warrants to subscribe for 1,000,000 bearer shares of

fund obligations.

The 64, the report says, are potentially unviable. Propping them up with emergency funds for salary payments or repeatedly backing emergency loans to keep them affort is no longer a solution. The report says that bankruptcy should be urgently considered.

The crippled companies also

Dresdner Bank

Aktiengesellschaft

Subscription Price: DM 150 per share of DM 50 par value

Secured by a Deposit with

Dresdner Bank Aktiengesellschaft, Frankfurt/Main

Issue Price: 105%

Dresdner Bank

Merrill Lynch Capital Markets

Morgan Guaranty Ltd

Credit Suisse First Boston

Salomon Brothers International

ABD Securities Corporation Bank of Tokyo International

Commerce Exterieur Chase Manhattan Capital **Barclays Bank Group Markets Group**

Daiwa Europe IBJ International

Banque Française du

Nippon Credit International (HK) Ltd. PK Christiania Bank (UK)

Morgan Grenfell & Co.

Union Bank of Switzerland

Algemene Bank Nederland N.V. **Bankers Trust International**

Banque Nationale de Paris

First Chicago

Kidder, Peabody International

Morgan Stanley International Nomura International

Sumitomo Finance International S.G. Warburg & Co. Ltd. **BankAmerica Capital Markets**

Banque Bruxelles Lambert S.A. **Banque Paribas**

Dai-Ichi Kangyo International

Goldman Sachs International Corp.

International The Nikko Securities Co., (Europe) Ltd.

Swiss Bank Corporation International

Yamaichi International (Europe)

This advertisement appears as a matter of record only

8% Deutsche Mark Bonds 1984/1992

Dresdner Bank

Aktiengesellschaft

Subscription Price: DM 150 per share of DM 50 par value

Issue Price: 115%

Dresdner Bank

Algemene Bank Nederland N.V.

Bayerische Landesbank

Banque Populaire Suisse S.A. Luxembourg

Girozentrale Lehman Brothers Commerzbank Deutsche Bank

Orion Royal Bank

Hessische Landesbank – Girozentrale – J. Henry Schroder Wagg & Co.

Deutsche Girozentrale

Kleinwort, Benson

Westdeutsche Landesbank

Dresdner Finance B.V.

DM 250,000,000

with Warrants to subscribe for 1,000,000 bearer shares of

Secured by a Deposit with Dresdner Bank Aktiengesellschaft, Frankfurt/Main

Banque Internationale a Luxembourg S.A. **Barclays Bank Group**

Bayerische Vereinsbank

Credit Suisse First Boston Deutsche Kommunalbank

Swiss Bank Corporation International

Girozentrale

Banque Nationale de Paris

Bayerische Hypotheken-und Wechsel-Bank

Berliner Handels- und

Den norske Creditbank

Genossenschaftsbank

Österreichische Länderbank

Union Bank of Switzerland

Frankfurter Bank

DG Bank

Deutsche :

(Securities)

lahrain e

Wif firm

[jbv::- 3]

parkage loss

OVERSEAS NEWS

Bankers worried by Manila-IMF debt pact delay

bankers say the two sides are at last talking the same language.
But the gap remains But the gap remains wide, with Manila hesitating in particular over a flotation of the peso, which has already been devalued three times since June

Market by the same of the same

ition

to value (

TOTAL SECTION

727533 ed that ha

in the Paris

in Beint

The Government is also fac-ing severe difficulty meeting IMF targets for the reduction of the money supply, especially after a recent costly rescue of a major bank.

Agreement with the IMF is

country in the region experienc-ing a severe contraction in gross domestic product, estimated at 6 per cent in real terms. The annual inflation rate has risen

to 50 per cent. Western bankers are worried than an IMF agreement will not be concluded before the Philip-

PROTRACTED negotiations between the Philippines Government and International Monetary Fund on an SDR 615m (2478m) standby credit have reached a critical phase, as pessimism deepens over the country's long-term economic prospects.

Mr Jose Fernandez, the Philippines central bank governor, indicated yesterday that the talks, which have dragged on for almost a year, remained on course, and he voiced optimism about a deal. Western bankers say the two sides are at

ment in the rescue package, which originally applied for the 18 months to the end of this year. Mr Fernandez confirmed yesterday that the talks are now focusing on the 18 months to March 1986, which means e rise in the new money required although not in the amount re-scheduled.

scheduled.

Some husinessmen wonder whether the Philippines Government might outlast the IMF, forcing the Fund to comprothe key to a vital debt rescue package with commercial bank and official creditors, involving \$3.3bn (£2.5bn) of a new money and a rescheduling of a substantial portion of the country's \$25.6bn external debts. Even with a deal, the Philippines is not expected to recover its pre-crisis economic position before 1990. It is the only country in the region experiencing a severe contraction in gross Philippines analysis argues that only a change in the system of government, towards less centralised political and economic

decision-making, can now over-

Assad 'in bid to abort Libya-Morocco union'

BY RICHARD JOHNS IN TRIPOLI COL MUAMMER GADAFTS agreement with King Hassan on a "state of union" between Libya and Morocco appears to have badly strained relations Arab People's Union, a forum with his one reasonably and in which representatives of the ally in the Arab world—the Syrian régime of President Hafer af-Assad.

That is the interpretation state media continues to extol

Syrian regime of President Hafez st. Assad.

That is the interpretation placed by diplomastic observers beere on President Assad's arrival last Thursday in dent Assad's visit here. Bengazi, the main city of eastern Libya. He was reported to have returned, at the weekend after talks with President Chadli Bendledid of Algeria.

Cally.

Meanwhile, as the Libyan state media continues to extol the treaty with Morocco, little dent Assad's visit here. Algeria dismissed the Libyan-moroccan agreement as an irrelevant diversian from the unsolved problems of the nine-year-old war in the Western hadli Bendjedid of Algeria. Diplomats believe President

Assad may be making a last-ditch effort to abort the union which is to be the subject of a referendism in Morocco on August 31 and may be formally declared by Col. Gadaffi at the celebrations for the aumiversary of the Libyan Revolution here on September 1.

President Assad, it can be assumed; was angered that Col. Cardaff, did not inform or con-

President Assad, it can be september I celebrations. September I celebrations. September I celebrations. Clearly, however, neither would be willing to attend in the presence of the other and any increase in Col Gadaffi's infinence over the Mahgreb legerian border town.

Diplomats point out that Gadaffi did not inform or con-sult him before his meeting with King Hassan on August 13 at Oujda, the Moroccan/

Sahara.

In line with its rapproche ment earlier this year with Morocco, Libya withdrew snp port from the Algerian-backed Polisario Front, which is figbl-ing the Moroccan army. Col Gadaffi evidently wanled both King Hassan and President Assad to come to the September I celebrations.

Bahrain suffered \$143m trade deficit last year

BY MARY FRINGS IN BAHRAIN BAHRAIN last year registered its first trade deficit since 1979, according to a report just pub-lished by the Bahrain Monetary

lished by the Bahram Monetary Agency (BMA).

Although the overall belance of payments remained positive, thanks to a surplus on invisibles of \$286m (£205m), there was a fall in net official reserves (BMA and Government) of \$108m. This brings the esti-mated reserves to just over \$1.5bm.

in the value of total non-oil exports, from \$644m to \$612m.

At the same time the non-oil import bill increased 8 per cent from \$1.764bn to \$1.91bn. meinly as a result of the construction of big projects such as the Saudi-Bahrain causeway, petrochemical and iron pelistising plants.

(BMA) and Government) of \$108m. This brings the estimated reserves to just over \$1.5bm.

A deficit in visible trade of \$143m, compared with a surplus in 1982 of \$175m, was attributed partly to a reduction in the oil trade surplus, from \$1.295bn to \$1.156bn.

The balance in the non-oil trade account is tradictionally unfavourable, but this was

unfavourable, but this was accentuated last year by a falloff in Bahrain's trans-shipment trade with other Gulf states, which despite a 40 per cent increase in aluminium exports led to a 5 per cent reduction result in the state of the st year, against a surplus in 1962 of \$221m. Actual revenue fell 12 per cent, and total expenditure increased 13 per cent.

Domestic inflation fell from

Namibia talks to resume

TALKS ON the future of government officials say signifi-Namibia (South-West Africa) cant developments on Namibia's South Africa and and the Swapo

ence movement, are In Pretoria yesterday a spokesman for South Africa's Foreign Affairs Department declined to comment on earlier declined to comment on earlier the issue to come to a nead in reports that tripartite talks on Namibia's future are due to resume on Cape Verde Island. However, he did confirm that the next few days on Schoolchildren in Durban yesterday protested against today's South African Indian elections by boycotting classes. In another development Mr. Lavis la Grange. South Africa's

future are likely very soon.
Addressing a meeting at
Pretoria University on Saturday Mr "Pik" Botha, South African Foreign Minister, said negotia-tions for a Namibian ceasefire had reached a very "critical stage." He said he expected the issue to come to a head in the issue to come to a head in

Assistant Secretary of State for African Affaira, is to visit South Africa in the next two weeks for talks on Namibia's future.

Despite the cautious official approach to the muted Cape Verde talks, South African

Gandhi in drive to avoid clash over Rama Rao sacking

MRS INDIRA Gandhi's ruling Rao, the new Chief Minister.

Congress-I Party in India has
Last night, Mr Bhaskara Rao
launched a campaign to claimed he had a majority
extricate itself from a serious ready for when the state legis-

State of Andara Fracesa.

Two of the state's Congress I that they could not join him.

The crisis could prove a test his majority in the state legislature, resigned on directly in the state legislature.

The crisis could prove a test his majority in the state legislature, resigned of the they could not join him. The crisis could prove a test his majority in the state legislature, resigned of the that they could not join him. The crisis could prove a test his majority in the state legislature, responsibility for pledging his party's aupport for Mr ham a governor, who refused Mr Rama Bhaskara Rao without consultional leaders.

She said at the weekend the Rao's request, resigned last ing the party's national leaders.

Delhi.

extricate itself from a serious ready for when the state legislature meets. He also accused missal of the former film star. Mr Rama Rao's party of "aking so of Chief Minister of the legislature to the neighbouring state of Ramataka so leaders—the Governor and the local Parliamentary chairmen—have resigned and Mrs Gandhi as she approaches has not yet confirmed she will give support to Mr N. Bhaskara

Two of the state's Congress I figure, who has held top posts in the party and in national and state government. Andhra, and not Mrs Gandhi or her national advisers, were responsible two weeks ago for the legislature to the neighbouring state of Ramataka so leaders—the Governor and the local Parliamentary chairmen—have resigned and Mrs Gandhi as she approaches float to the resigned on give support to Mr N. Bhaskara

She said at the weekend the state legis—

It is now clear that the party's congress I figure, who has held top posts in the party and in national and state government.

Mr A. Madan Mohan, leader of the Congress-I group in the state legislature, resigned on Sunday. He seid be "took full responsibility" for pledging his party's aupport for Mr Rama can bot yet confirmed she will give support to Mr N. Bhaskara

She said at the weekend the state legis—

It is believed that if Mr Bhaskera Rao fails to produce stress that the leaders in national eadership lends to posts in the party and in national and state government.

Mr A. Madan Mohan, leader of the legislature, resigned on Sunday. He seid be "took full responsibility" for pledging his party's autonal leadership lends to posts in the party and in national and state government.

Mr A. Madan Mohan, leader of the legislature, resigned on Sunday. He seid be "took full responsibility" for pledging his party's autonal leaders.

A spokesman claimed they who flew with Mr Rama Rao to top posts in the party and in national and state government.

Mr A. Madan Mohan, leader of the legislature, resigned on Sunday. He seid be "took full responsibility" for pledging his par

election would take place "on Friday. He was replaced over schedule"—which means by the weekend by Mr S. D. of Mrs Gandhi was in no was a reference to responsible," he declared.

Senior responsible," he declared.

156 mebers of the legislature

Ethnic violence causes sharp fall in Sri Lanka tourist revenues

SRI LANKA'S major tourist industry has suffered heavily plans drawn op last year.

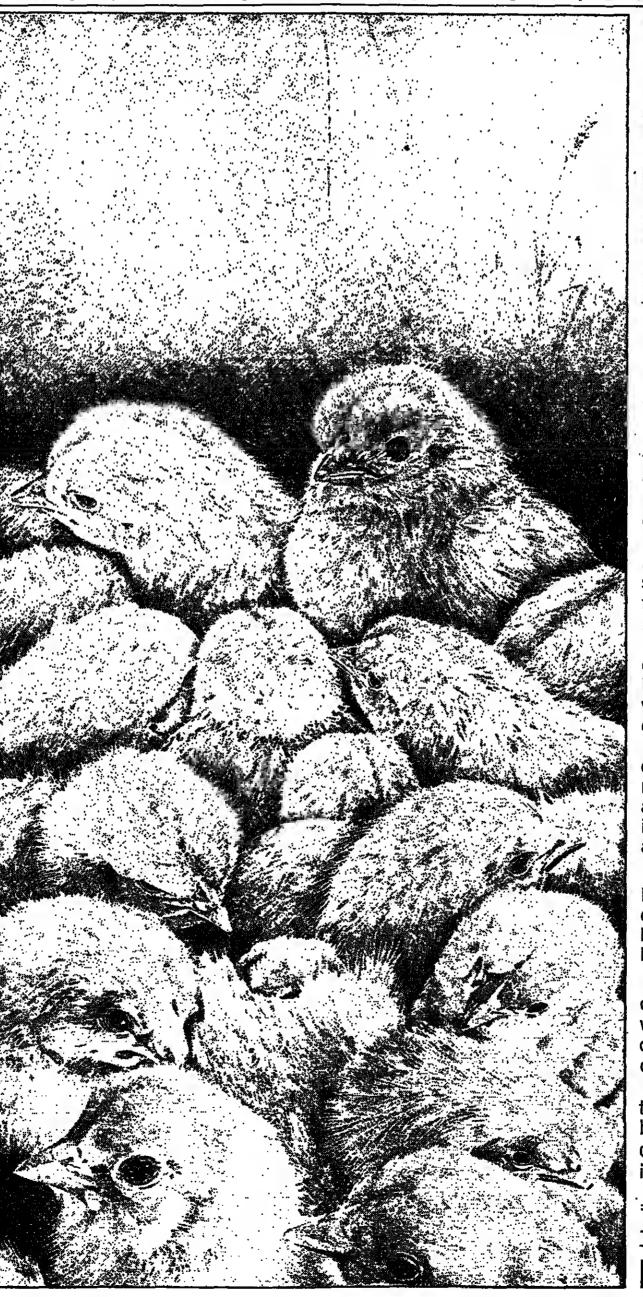
But the immediate economic last summer and is now building a payable.

The number of tourist in the first half of last year and by 30 per cent compared with in the custrent year.

The number of tourist is first half of last year and revone decoped between about in the first half of last year and revone decoped between about in the custrent year.

Foreign industrial investment in the custrent year.

Foreign industrial inves



BOOKER'S WORL EVEN MORE

GROWTH FROM A GROWTH FOOD BUSINESS

As with so many of Booker's companies, Arbor Acres is first in its field. From its US base, it is the world's leading producer of breeding stock for broiler chickens; about a third of the world's broiler production comes directly from its female parent stock. It has been in the forefront of poultry genetics for over forty years.

Another leader is Nicholas Turkey. Also based in the US, it is the world's principal source of breeding stock for large white turkeys. It has expanding markets in Europe, Latin America and the Far East.

As one of man's healthiest and most efficient sources of protein, poultry is increasingly preferred to red meat in the developed world and has huge potential for growth as consumption rises in the developing world.

Since 1980, profits from Booker's agricultural interests-including agricultural management and consultancy, salmon farming, and arable and forest management-have increased at a compound rate of over 40% annually, and the trend is continuing.

In health foods Booker's world includes Holland & Barrett, the UK's largest health store chain; Allinson, the country's most popular branded brown bread; and leading vitamin brands marketed throughout the US and UK.

In food distribution Booker is the leading cash and carry operator; the largest catering wholesaler: has a nationwide network for delivered trade to independent retailers; and owns the Budgen/Bishop's food store chain.

Booker's world is expanding, at home, in the US and internationally, to the benefit of its shareholders, its customers and the communities in which it operates.

Booker McConnell PLC

LEADERS IN TOMORROW'S WORLD

COPENHAGEN HANDELSBANK A/S

Half-Year Report:

Copenhagen Handelsbank made an interim profit of Kr. 414,6 million before provisions for had and doubtful dabts, depreciations, adjustments in the market value of the securities portfolio, extraordinary items, and taxes. This compares with a profit of Kr. 219,8 million for the first half of 1983.

PROFIT AND LOSS ACCOUNT (summary)

	First	First half of						
(Kroner million)	1984	1983						
Interest and commission on advances Interest and dividends, etc., on bonds,	1,538.3	1,542.8						
shares and morigagas, etc	832,1	494.7						
foreign banks, etc	868.9	706.2						
Total interest income	3,239.3	2,743.7						
Interest on deposits	1,267.2	1,247.9						
toreign banks, etc	879.2	655 9						
etc	80.8	88.6						
Total interest expenditure	2,247.2	1,992.4						
Nat income from interest and commission Profit on and value adjustment of toreign	992.1	751.3						
exchange: Protit on and value adjustment of foreign exchange	2.6 1	35.5						

Other ordinary income Proht before expenses, etc................................... 1,247.1 1,012.8 Profit before provisions and depreciations, etc...... Extraordinary income and expenses Adjustment for changes in market valua

- 423.2 Profit including edjustment for changes in market valua of securities, but before provisions and depreciations,

1,196.2

Prospects for 1984 Against the background of the current prospects for the Bank's business volume, the operating results for the full year are expected to be satisfactory - and this despite the heavy competition that reduces the profit margins on many types of transaction.

Copenhagen Handelsbank has entered into an agreement to sell just over half of its shareholding in Nordfinanz-Bank Zürich. On the assumption that the deal receives official approval, an extraordinary profit in the region of Kr. 90 million will be written into the accounts. The final results for the year will obviously be affected by

the behaviour of bond and share prices.

The fall in bond and share prices in the spring caused a substantial imputed loss on the securities portfolio for the first

substantial imputed loss on the securities portfolio for the first hell of the year.

Even though we expect the share market to be more buoyant in the second half of 1984, the level of interest (and hence the marketvalue of the Bank's bond portfolio) obviously exercises considerable influence on the final results.

If the average rate of bond interest at the end of 1984 corresponds to the half-year level, a modest loss on the securities controlling may be expected.

portfolio may be expected.

COPENHAGEN HANDELSBANK A/S

China plans to open Tibet route | Malaysian PM

BY K.K. SHARMA IN NEW DELHI

ficantly expanding Sino-Indian trade. Tibet is a semi-desert, highplateau province of China that bas

a long border with India. The suggestion made to the indian Government is that it should take advantage of the construction trial complexes are being con- communism in 1953.

Italy wins

telephone

contract

6y Alan Friedman in Milan

TALTEL the Italian state

Italtel exports telecommunicarions equipment at present to

Argentina. Brazil, Colombia. Uruguay and Venezuela. This is the first time it has won a Latin American contract to

complete an entire telecommunications network.

The Montedison Chemicals group has signed an agreement with Asahi Glass of Japan to build a new factory

near Tokyo for the production of fomblin, a chemical used in the manufacture of high technology goods, such as

semiconductors. Under the joint venture Asahi

Far East

China is apparently finding it ex- official trade talks this month in then.

cult terrain.

The overland route to Tibet from India via Kalimpong in West Ben- India is going slow on normalisa-

Tibet be reopened as a way of signi- the mainland on the overland route, years from the present paltry which goes through extremely diffi- \$145m. A most-favoured-nation trade treaty was also signed.

gal was closed after the brief but tion of economic relations with Uhibloody Sino-Indian border war in na because the Government feels 1962. Before then, it had been in virthat priority should be given to setboom in the semi-autonomous region of Tibet, where thousands of new bouses and some small industrial complexes are being some that the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on that is to be hald in Peking next round of talks on that is to be hald in Peking next round of talks on that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that is to be hald in Peking next round of talks on the Dalai Lama, from Chinese that the Dalai Lama, from month and it is possible that the India and China held their first trade issue will also be taken up

CHINA HAS proposed to India that pensive to transport the equipment Peking and set a target of an annutate and other building materials from all two-way trade of \$2bn within five na will start taking applications Reuter reports from Peking: Chifrom abroad for patents on inventions and industrial designs from October 1, six months sooner than planned, the China Daily said yes-

> The introduction of a patent system in China has long been awaited by some foreign businesses, which have been rejuctant to commit themselves to contracts, especially those involving high-technology items, without protection against

warns Japan on 'colonialist' policy

BY WONG SULONG IN KUALA LUMPUR

three-year-old honeymoon with three-year-old honeymoon with Japan is over was provided yesterday by Dr Mahatbir Mohamad, the Prime Minister, and architech of the country's "Look East" policy of unabashed emulation of Japan.

Dr Mehathir criticised the present bilateral economic ties, saying the situation in many respects conformed to the "classic pattern of economic colonialism." Japan, he said, bought only primary raw materials from Malaysia and "practically nothing" by way

of manufactured goods, even though Malaysia had moved strongly into industrialisation. Speaking to a group of Malaysian and Japanese officials in the capital, he said that although Japan was a strong opponent of protectionism at international forums, the Japanese market was highly pro-Japanese market was highly pro-tectionist. He warned that Malaysia could not allow this situation to persist, and might have to retaliate by restricting and buying fewer Japanese

goods. He said this retaliatory action could even be extended to cover Asean, the six-nation sociation of which Malaysia is a member, since other Asean countries were equally frustrated with their economic

ties with Tokyo.
Dr Mahathir cited other areas of "economic tension." part, the including the issues of transfer reading, pricing, the growing imbalance in invisibles in Japan's favour, policy.

CLEAR evidence that Malaysia's and Japan's refusal to allow Malaysian Airlines System to make more flights, despite his personal intervention in the matter.

indus o co

Beergrooties

in the state of th

They be to again

In recent months there has been a critical reassessment of the "Look East" policy by

JAPANESE engineers have JAPANESE engineers have resumed work on the heavily-bombed Bandar Rhomeini petrochemical complex in southern Iran, Reuter reports from Tokyo. About 200 engineers and ether staff have recently entered the \$3.5bu complex, which was \$5 per cent finished when Iraqi bombing forced work to stop last February.

Malaysia, but observers were surprised to hear Dr Mahathir speak so harshly against the nation he so admired. The speech reflects his growing disenchantment that Japan had benefitted enormously from his policy, without reciprocating.

Malaysian contractors have complained that the Japanese have craphied all the major con-

complained that the Japanese have grabbed all the major construction projects in Malaysia, but failed to transfer technology, as promised. Other Malaysian businessmen and officials have also detected an arrogant and insensitive attitude among their Japanese counterparts, and say this is, in part, due to the Japanese mispart, due to the Japanese mis-reading, or exploiting the intentions of the "Look East"

Egypt signs four oil agreements

FOUR FOREIGN oil companies, agreements for 10 concession zone also in the Gulf of Suez.

rock rock and respond to the series of about \$485m.

Including British Petroleum, areas with planned exploration expenditure of about \$485m.

The largest of the agreements yesterday signed exploration and production agreements with the Egyptian General Petroleum Corporation for areas in the Gulf of Suez, the Mediterranean, and the desert Southeast of Cairo.

The largest of the agreements signed yesterday involves Esson Gulf of Suez, the Mediterranean, and the desert Southeast of the U.S., which has undertaken to spend \$44m over the next 10 years on exploration in \$12,000 cm km concession. telecommunications equipment maker, has won a L50bn (£21m) contract to supply Guatemala with an electronic digital telephone

electronic digital telephone network.

The network is to be completed in collaboration with GTE and Telettra and will have capacity for 40,000 telephone lines. The project will also include cable and fibre optic transmission systems and urban telephone networks.

cairo.

The agreements are part of an Egyptian drive to boost oil production and maintain a surplus for export in the face of rising domestic demand. Egypt's present production is 750,000 tharrels a day, one third of which is exported.

The four foreign oil companies, Esso. Conoco. Getty and BP, have pledged to spend a total of \$201.7m on exploration.

Egypt has now signed this year to spend a \$66.7m to explore a \$20 sq km

Egypt plans to sign another three oil and gas concessions this year, as part of its drive at least to maintain oil production at present levels. Under the terms of various agreements signed yesterday, the Egyptian General Petroleum Corporation's share of oil production will range between 85 and 88 per cent.

All agreements provided for the payment of "signature" and "production" levies. Accord-ing to the annual report of EGPC, eight new wells were discovered offshore in the Gulf of Suez during 1983. In addition, four petroleum and three natural gas fialds were dis-

SHIPPING REPORT

Concern over industrial disputes

INDUSTRIAL disputes, rather working normally but it was this type of ship continues to than war activity, dominated doubtful whether this would be built when 50,000-ton the shipping market last week, last for long. than war activity, dominated the shipping market last week, as reports of attacks on tankers in the Gulf abated and labour problems in Britain, the U.S. and Australia worsened.

Glass will spend around \$5m to build the factory at Chiba. and Australia worsened.

While Britain concentrated on its own coal and port problems, the threat was building of a rail strike in New South Wales which could affect supplies of coal to docks. Meanwhile there was a mining go-slow in South Africa and pay talks had broken down in the U.S.

Galbraith's said this might near Tokyo. The factory will begin production by the end of 1985. Asahi has agreed to sell its entire output te Montefluos, a Montedison subsidiary, which will market the chemical in Japan and tha

he Italo-Japanese venture calls for the Montedison group to take control of the plant, after several years of

One effect of the UK miners'

the Central Electricity Generating Board of about 500,000 tons a week, mostly imported through 50/60,000 deadweight ton vessels from the Caribbean, the Mediterranean or the Continent

are unable to load the classical 500,000 barrels of crude (approximately 65,000 tons)."

These vessels were rarely able to trade in crude oil movements, especially from the North Sea.

Tanker rates improved in supplies of coal to docks.

Meanwhile there was a mining go-slow in South Africa and pay talks had broken down in the U.S.

Galbraith's said this might prompt some extra bulk carrier areas still say. "One often wonders why Gulf for 31.5.

Continent.

Tanker rates improved in the Mediterranean last week, giving owners a slightly higher return. But this was not the low and rates had hardly been affected. "Perhaps there is a prompt some extra bulk carrier lesson to be learned here," they activity from areas still say. "One often wonders why Gulf for 31.5.

WORLD ECONOMIC INDICATORS

FOREIGN EXCHANGE RESERVES

June '84 6,329 21,062 38,766 7,057 17,920 8,434 3,159 May '84 19,304

How does Seisella expect to find North Sea oil and gas deposits tnat have been overlooked before?

Relentlessly, this special ship plies the North Sea. Near the stern, water guns are triggered to produce environmentally safe underwater explosions. In her wake trails a two-mile-long streamer containing hundreds of sensitive hydrophones. These detect faint acoustic signals that bounce back from deep within the earth.

The vessel is the m.v. Seisella, a survey ship operated by Seismograph Service Ltd., of Kent, England. SSL is a subsidiary of Raytheon's Seismograph Service Corporation.

Seisella's instrument room is the nerve center of this complex data gathering operation. Here millions of bits of data are digitally recorded in preparation for computer processing. In areas of high interest, data can be recorded with such high resolution that three-dimensional maps can be made of the strata beneath the sea.

As a result of this improved detail, Seisella can help find commercial deposits of oil and gas

that might have been overlooked. Fewer wells may have to be drilled to delineate a field. And the time between discovery and production may be substantially reduced.

In fact, savings for oil companies can be significant even when no oil is found. If drilling even one dry hole is avoided, the cost of the survey is more than justified.

Seismograph Service Corporation operates on land and sea, and is a global leader in applying high technology to the continuing search for ever scarcer energy resources.

Raytheon...a \$5.9 billion company in electronics, aviation, appliances, energy, construction, and publishing. For copies of our latest financial reports, contact any of the offices or companies listed below or write: Raytheon Europe, 52, Route des Acacias, 1227 Geneva, Switzerland, or worldwide headquarters, Raytheon Company, 141 Spring Street, Lexington, Massachusetts, U.S.A. 02173.

RAYTHEON

FOR INFORMATION ON GEOPHYSICAL EXPLORATION SERVICES: England: Seismograph Service Limited, Holwood, Westerham Road, Keston, Kent BR2 6HD. Tel. 44/689/53355. France: Cie Française de Prospection Sismique, Sophia Antipolis, 06565 Valbonne CEDEX. Tel. 33/93/330202.

RAYTHEON COMPANIES IN EUROPE: Electronics: Cossor Electronics Limited, Harlow, Essex, England • Data Logic Limited, London, England • Raytheon Halbleiter G.m.b.H., Munich, Federal Republic of Germany . Raytheon International Data Systems, Amsterdam, Netherlands; Frankfurt, Federal Republic of Germany

Raytheon Marine Sales & Service, Copenhagen, Denmark; London, England

TAG Halbleiter G.m.b.H., Boeblingen, Federal Republic of Germany

TAG Semiconductors Limited, Zuzich, Switzerland

Wire and Cable: Electrical Installations Limited, London, England

Le Fil Dynamo, S.A., Meyzieu, France • Lacroix & Kress, Klasing G m.b H. & Co., OHG, Gramsche, Federal Republic of Germany • Sterling Greengate Cable Comp Aldermaston, Berkshire, England.

RAYTHEON OVERSEAS LIMITED, EUROPEAN OFFICES: Bonn, Grussels, London, Madrid, Paris.

lead

tourist

By Lisa Wood and

invasion

PROVISIONAL tourist statistics

over the same period in 1983. The

higgest increase was a 20 per cent rise in the number of U.S. visitors,

encouraged by the strength of the

A record 13m visitors to the UK

will be from Americans.

Americans

Industry draws up plans to cope with dock strike

BY OUR INDUSTRIAL STAFF

.eg 3. 14:12:02 (38 188

The state of the s

ND CATOR

医克里氏试验 衛軍 and the second

n for vigality

100000

 $X_{i,j,k}^{-1}(x) = y_{i,k}$

1000°

 $(\mathcal{A}_{i})_{i=1}, \dots, (\mathcal{A}_{i})_{i=1}, \dots, (\mathcal{A}_{i})_{i=1}$

121

 $z=-1.042^{62}$

 $_{i,j+1}v\in \widehat{\mathcal{O}}_{i}^{N}$

en en en en en en en en en en

 $<\gamma_{i}\gamma_{i}\gamma_{i}\gamma_{i}\gamma_{i}\gamma_{i}\lambda_{i}\lambda_{i}$

 $e_1 = p^2 + 2 \sqrt{m^2}$

Santa Se

 $\mathcal{L}_{\mathcal{A}_{n,j}}^{\mathrm{total}}$

ar ann a

Marrett

called last Friday. They drew com-fort, however, from the decisions at partial closedown of ports would be some ports to continue working.

The Association of British Cham-

bers of Commerce said: "This dispute looks as though it will be less damaging than its predecessor.

The association said the cracks in the dockers' solidarity would allow a strike-bound dock to a working goods.

The CBI said that if the strike did begin to bite, the first sectors to suffer would be bulk imported raw materials such as paper, chemicals, textiles, metals, coal and iron ore. The effects would then spread to goods for export to be diverted from food, components and finished

The chemical industry is poten-

BRITISH companies spent the dustry (CBI) gave a warning last business goes through the ports. The weakest point is seasonal excontingency plans to deal with the per cent of industry to a standstill effects of the national docks strike within weeks. It remained cautious particularly in key ports such as Southampton and Hull, grain ex-

ports might be one of the main ca-Officials of the National Farmers Union and the Ministry of Agriculture cautioned yesterday that it was far too early to tell what impact the strike would have on the food trade.

Food stocks in cold stores are plentiful. Many importers are be-lieved to have huilt up considerable The Chemical industry is potential industry is potentially vulnerable, since over half its stocks in anticipation of the strike.

> One result of the tourist influx has been that there are nnly three closed theatres in London this year compared with about 12 early last year. In the West End, a dozen musicals are playing - as many as the total number of shows on Broad-

"Musicals are particularly attrac-tive to American visitors and to those tourists who may have lang-uage problems with plays," the So-ciety of West End Theatres says. Attendances this month are 12 per cent up on the same time last year. "Whereas we would normally ex-pect 30 per cent of sales to be to overseas visitors, it must now be in

excess of 45 per cent," the society London department stores are al so benefiting. Takings at Harrods in Knightsbridge are up by an aver-age of 20 per cent this summer. with Americans buying traditional goods including cashmere knitwear and china, but also "shopping throughout the store," Mr Aleck

Craddock, the chairman, says. The antiques trade has gained too from tourists. Nearly a third of the than 20,000 visitors to the Fine Art and Antique Fair at Olympia, London, last June were from abroad, particularly from the U.S.

Outside London, traditional tourist attractions such as Windsor Castle, Stonehenge and Stratford-upon-Avon remain as popular as ever, but tours to Chester. York and Edinburgh are attracting increasing

Frames National, a coach compa ny, estimates that its sales of tours are 50 per cent up on last year and that its figures are as good as dur ing 1977, the year of the Queen's sil-

Lamb dispute shows lack of EEC rules

BY ANDREW GOWERS

meat. It has also exposed the wide gulf between approaches to the issue in different countries. show that 3.15m people visited Brit-ain in the period March to May this

Community's power over so many aspects of what we eat, it has no common rules on the overall question of unwanted chemicals in food, or how to detect them.

It can ban the use of individual ticides - as it has done with DDT for example - or of growthare expected for the year as a whole. Their spending is estimated to reach £4bn, of which nearly £1bn promoting hormones in animals, such as those found in large quanti-ties in veal from continental Europe a few years ago. EEC officials are

also reviewing the safety of hormones used in beef production.

The Commission may recommend what it believes to be an acceptable maximum for particular micals in food, but its suggestions have nn legal fnrce.

In the absence of common regulatinns, there is the usual spectrum of views on the right way of monitoring and controlling the quantity of unwanted chemicals in food. West Germany is at nne end of the scale, with a meticulous sampling system, and the UK is at the other, with a pragmatic approach to testing and a deep scepticism of legislation on

THE LATEST Anglo-French fracas It is into that institutional vacuover the lamb trade has joited ex- um that France has stepped with its perts in London and other EEC cap-tight controls co lamb containing itals into taking a new look at the more than one part per milling question of chemical residues in (ppm) of Lindane. Any supplier of sheepmeat to France whose consignments repeatedly show higher Perhaps surprisingly, given the himself barred from the market.

gamma-HCH, is the active ingre dient of most commonly used dipa against sheep scab, a pernicious and highly infectious disese caused hy mites hurrowing under the animal's skin.

Given that the latest phase of a particularly vigorous national cam-paign to eradicate the infection in Britain ended less than three weeks ago, farmers reckon the residues in most of their meat will still be well above the French limit. As a member of the controversial

organochlnrine group nf pesticides - to which DDT also belongs - it is agreed that Lindane is dangerous if ingested in large quantities.

The British Government does not, however, agree with Paris's assertion that the Lindane levels found in UK meat pose a health ba-

The French limit on Lindane is certainly low by international standards. The United Nations' food monitoring body, Codex Alimentarius, recommends a limit of 2 ppm

Sealed Tenders are invited from reputed firms for the supply of BRASS CUPS (300 MT). Specifications, Drawings and Tender forms can be obtained from the fallawing citing Ref No. SW/ VA/8414043:

Contracts & Tenders

NOTICE INVITING TENDERS

FOR

BRASS CUPS

Company Notices

Dresdner Finance B.V.

Amsterdam

U.S.\$ 250,000,000 Floating Rate Notes 1984/1992

Dresdner Bank

The Rate of interest applicable to the interest Period from August 27, 1984 to February 25, 1985 includently, was determined by Morgan Guaranty Trust.

Cempany of New York London ins Reference Agemilo de 1215 per cent per

Frankfurt om Marn, in August 1884

High Commission of India Director (EDP) Supply Wing Aldwycb, London WC2 4NA

Completed Tender Forms are required to reach us by 3 pm on 15th October 1984.

Legal Notice No. 005031 of 1984

IN THE HIGH COURT OF JUSTICE Chancery Division, in the Marter of SNDKER McCDNNELL PLC and in the Martor of the Companies Act 1948. MOTICE IS HEREBY GIVEN that o Potition was on the 7th Auguer 1984 cresented to Her Majesty's High Court of Justice les the capital of the obovenamed Company from £40,600,000 to £40,000,000 by returning capital which is in excess of the wants of the said Company.

AND NOTICE IS FURTHER GIVEN that the asid Petition is directed to be

And MOTILE IS FURTHER GIVEN that the asid Perition is directed to be heard below the Honourable Mr Justice Vinelott at the Royal Courts of Juatico, Strond, London WC2A 2LL on Wodnesdoy the 5th day of September 1984.

1984.

ANY Croditot or Shorsholder of the and Comeany desiring to oppose the making of an Order for the confirmation of the said reduction of capital should oppose at the time of hearing in person or by Counsel for thet purpose.

A copy of the sold Petition will be furnished to any such person requiring the same by the undermontoned Solicition on payment of the regulated charge for the same.

Outed this 28th day of August 1984.

Oated this 28th doy of August 1984, SIMMONS & SIMMONS, 14 Nominion Street, London EC2M 2RJ. 5/C.48155/POK. Solictors for the above 2010

CLASSIFIED **ADVERTISEMENT** RATES

9.50 33,00 Ignidential Property 7.50 25.00 34.50 Appointments 10.00 Buainosa, Inve Opportunities, Business for Sale/Wonted 33.00 Porsonal 25.00 7.50

Hotels & Travel Contracts & Tenders 9.50 33-00 Book Publishers Premium positions available (Minimum size 30 column cms)

£6.00 per single column cm extra For further details write to: Classified Advertisement Manager Financial Times

10, Cannon Street, EC4P 4BY

North Sea commitment sought

BY DOMINIC LAWSON

THE DEPARTMENT of Energy's bute in the future. The letter seeks
North Sea watchdog, the Offshore a reply by the end of September.
Supplies Office (OSO), is to hold a series of meetings with internation.

Mr Alick Buchanan-Smith, the for greater involvement of UK comal oil companies in an unprecedented effort to expand UK involvement m research and development for the offshore oil industry.

The move follows a letter sent to all companies that have indicated their intentions to apply in the furthcoming minth round of UK oil and gas licences.

The letter, sent by Mr John d'Ancona, the director general of the OSO, asks all the recipients to say what they have done for UK research and development in the past

The oil industry is viewing the ficial endorsement of p
and what they propose to contrimove by the OSO as a rather unwelin the UK oil industry.

Energy Minister, had said in May that he would regard a commitment to UK research and development as an important part of the criteria by round. However, it is apparently unprecedented for one of the licensing criteria to be tackled in advance of the formal close of applications. The oil industry has until De-cember 17 to submit its ninth round

panies in the UK offshore oil and gas industry. However, Mr Christopher Ryan.

the director of BRIT, denied that which he would judge the applica-tions of oil companies in the ninth ed by the OSO over the development The UK Offshore Operators Asso-

ciation said: "The letter will be discussed at our next council meeting." There is considerable anxiety nn the part of some foreign oil companies that the move might herald official endorsement of protectionism

British spending on ships falls 36%

BY DAVID LAWSON

hand vessels by the UK shipping industry fell by 36 per cent last year to £250m net of disposals. The decrease was because fewer new ships were delivered.
Public-sector spending on new

ships also fell by 36 per cent to £7m, while the private sector cut the bill for alterations by almost 40 per cent

In 1983 the industry received orders for 54 new ships worth £365m, a fall of £160m over the previous year. UK yards built 34 ships.

all deliveries by value.

The Department of Trade figures, published in the magazine British Business, showed that new orders placed in 1983 fell by almost I1 per cent to 280,600 gross registered tons grt in 34 ships in 1982. That reflects

South Korea was the main over-

phasis on that type and size of ves-

in 25 vessels, compared with 314,000 tugs. The emphasis has switched to the continuing depression in freight supply ships as drilling moves into markets and the high level of idle deeper and more difficult water.

rates, because of an excess of ships, saw a reduction to only seven orders for offshore supply vessels and more powerful and sophisticated Investment by the shipping in-

SPENDING ON new and second which accounted for 14 per cent of corresponds with a world-wide em-

The fall in North Sea chartering

Only 11 orders were placed in for-eign yards - one more than in 1962 was £28m (1980 prices) compared and 14 with UK yards (24 in 1982). with a revised estimate of £58m in South Korea was the main over-seas supplier, producing four ships, 25,000 grt from South Korea, which ress payments on vessels delivered.

OPPORTUNITY

SOFTWARE DISTRIBUTION

An Australasian microcomputer software company is seeking UK distribution for a range of general accounting applications for MSDOS/PCDOS hardware and the Apple MacIntosh. The company is part of a substantial international group and is a leader in its domestic markets. interested parties should have:

PROVEN RECORD IN THE MICROCOMPUTER INDUSTRY -DEMONSTRABLE PRODUCT SUPPORT

-STRONG FINANCIAL POSITION -- PROFESSIONAL MANAGEMENT -MINIMAL CONFLICT OF INTEREST

The General Manager—International of the company will be in London from September 12th to 14th to meet suitable organisations.

Please forward a preliminary proposal to: SOFTWARE DISTRIBUTION **NEW ZEALAND INSURANCE LTD** 118 Fenchurch Street, London EC3M 5BB

16 pointed questions to ask MSA or any software supplier

These questions will help you when you sit down

with individual software companies. They're tough questions. Relevant ones. And any supplier who is worth his salt should be able to answer

them without hesitation. Ask MSA

We'll answer all these questions to your satisfaction - plus any others you

In fact, we're probably the best equipped to answer them because MSA is the software company. We offer the most complete line of totally integrated systems in the software industry, including financial, payroll/ personnel, manufacturing and order

So you avoid the headache of trying to tie together individual systems. (And the bigger headache of adding to them.)

We've planned our growth, and the growth of our products. Instead of acquiring systems piecement, then trying to integrate them, MSA develops each system to work with the

With MSA's integrated systems, there's no unnecessary duplication of data or effort. Reporting is faster. All your information is more timely and accurate, and in the form you choose.

In short, we do everything we can to help you make informed business

Our technical edge comes from experience

By investing £20 million (this year alone) in the development of packages, MSA ensures that you are able to take advantage of technical

Over 850 accountants, financial experts and systems specialists work, house systems) for effective rogether to make MSA's application systems the most advanced and highly integrated in the industry.

We have proven packages with thousands of users who are kept fully close to service. Our Supupdated. MSA has systems that pro-. port Managers are knowmore realtime functions - we've been producing resitine systems since 1978. And solved the problems associnted with realtime, including ists throughout Europe. accounting control, security and

changes in statutory requirements or your industry. So you'll in accounting procedures are pro-never get a blank look or an vided automatically. Whatever answer that doesn't relate to changes may occur in your organisa- your business.

tion MSA's software has the flexibility to meet your needs.

50,000 days of

software training We ensure you have a firm grasp of our systems. Last year alone, MSA conducted more than 50,000 student days of customer training for over 3,000 companies at education centres all over the world.

MSA provides the most extensive Customer Education Programmes in the industry, to include personal mition and hands-on practical experience. All of which is fully supported by easy-to-understand documentation.

MSA not only enhances software, we enhance the people who use it. Regular user meetings give our customers a forum to express their likes, dislikes and suggestions. These often lead to new product developments.

Our systems are always ready to HELP!

MSA systems are just as friendly as our staff. Our online HELP feature actually guides users through our systems. And EASY SCREEN lets them design their own screens without creating data processing nightmares. One of our latest .

developments, INFORMATION QUICK, allows users to collate information from any or all of their systems, (including inmanagement reporting. If there's ever a question

concerning our systems, MSA customers are always ledgeable, responsive and backed by a complere team of industry special-This team is respon-

sible for solving the Enhancements necessary to meet specific software needs of

SAVE THIS BOX!---IT CAN HELP YOU MAKE AN INTELLIGENT SOFTWARE DECISION

1 What proven software systems what proven software system can you offer us that are designed to work together? Are your systems integrated both functionally and technically!

Are your systems online, and do they offer realtime functions so that all our information is current? How many of your systems are online?

Are your systems just record keepers, or can they really help us make decisions? Can we pull regether information from

dam from our in-house systems! Does the system do now all you say it will? Or will ue have to change 0 or add to

all of our integrated systems! In exactly

Will my company have to be the one that discovers the bugs in your brand new system? What Ind of quality assurance fourmes do you employ betwee issuing a system! And how long has the 33 tem

Do your systems have built in features that make them easier

online documentation that's easy to Will the system live up to my technical expectations! How current are you with the

figuring out a feature! Do you have

ares? Do they meet all current IAS, SSAP

technological issues - realtime, fronth generation languages, and darabase minagers? Will you be able to stay

Will you update your systems to take advantage of changes in technology and to meet current What are some of your most recent

As my business changes, will your system be flexible enough to change with it? Or will we have to pay a lot to revamp

10 Do your financial systems handle foreign currency Do cour linancial systems use a common set of currency exchange

and FASB accounting requirements automatically? Can you provide business software for both mainframe Do usu develop this sorwace for

courself, or do you samply market it for

Can you link my personal computer directly to our central mputer - so I can get my own Days your nuch c'mainfraine link provide over driven tools for decision support' And does a solate the user from all webnical considerations?

The Software Company

How long have you been in the application software business? And how important a packaged without humans to your commune!

What are your revenues! What is your growth record! Where will your company be two years from now." How many systems has your company installed? How many of these were installed in

How many of your staff specialise in software for my How many Accountants used for you? Data-Processing specialists! Experts from a Manufacturing environment!

the past or months! How many of your earlier customers still use, and

Are they willing to spend rate working unth us to enderstand our real problems and alentity total solution?

How will you make sura my staff thoroughly understand your system? Will use provide dedicated protestional trainers, and the right tachine to ensure they get the nest out of their time? Will you be there to help during installation and after?

MSA has the answers Whatever the size - whatever your business - MSA has a total software solution. We'll provide the highest quality

integrated software, realtime and online systems, including those listed on the nohr We'll integrate your business and manufacturing software systems,

using our exclusive Extended Closed

Loop manufacturing system. We'll even link you up with your company's main computer - with MSA's Executive Peachpak II application software. A revolutionary concept that lets you get the mainframe information you need through your personal computer.

We'll provide business software for your microcomputers through our Peachtree Software Company. Talk to us

We want to update you about soft-

ware. We want to make yout company wiser with software. If we've whetted your appetite with our 16 questions, clip the coupon. We'll send you the concise answers

that will help you even more in your deliberations. We'd also like to send you more information on how MSA can help you strategically plan for software and

on individual systems.

Act Now! Just fill in the information below or contact Barbara Carpenter at MSA. on (0628) 39242 or telex 847400.



A General Ledger

B Accounts Pavable and Purchase Order Control

C Budgetary Control D Fixed Assets Accounting

E Project Tracking

F Forecasting and Modelling

G Accounts Receivable H Order Processing

I Foreign Exchange J Inventory and Purchasing

K Payroll and Personnel L. Manufacturing

System (MRP II) M Executive Peachpak II

N Information Quick O Peachtree Software accounting systems

for micro-computers P Peachtree Decision Manager office productivity systems for micro-computers

MSA (Management Science America) Limited International Headquarters MSA House, Cedars Rd., Maidenhead, Berkshire SL6 ISA. Please send me the answers. Please send me more information on the following Systems ABCDEFGHIJKLMNOP

Address

Telephone No.

When redundancy can lead to a new start

term employment growth.

That at any rate was the theory behind Expand-a-Firm—an imaginative if necessarily small-scale experiment initiated in 1931 by Dr Meredith Behlin of the Cambridge-based Employ-ment Development Unit with modest funding from the Man-power Services Commission

Three years later Expand-a-Three years later Expanda-firm has not quite run its course but Belbin is neverthe-les sufficiently self-confident to be claiming success. In a new bookletⁿ which details among other things the results of the scheme so far he maintains that significant number of new is have been created and that the effects "are real and not

Development Fellows (as the redundant managers were somewhat grandiv called) were carefully matched with 11 companies, most of them in Wales and the Midlands, between mid-1981 and mid-1983. Under the terms of the programme, they were paid £7,000 for a year but the hope was that the small company would find them so useful in their work they would be offered a full-time job. This offered a full-time job. This had happened in six of the etal taken on more than 12 months before the booklet was written (though one was later dismissed on personal grounds).

Moreover, a total of 59 new jobs were generated following the ampainments of the

the appointments of the Fellows" and a further 16 were "saved from certain ex-tinction" in a company sudtinction" in a company sud-dealy laid low by the death of its managing director—though Belbin wisely qualifies his find-ings with reference to "the argument that these firms might have generated jobs anyway even if they had not been

pressive hit rate, it is perhaps a little ironic that the MSC has fused further financial support for Expand-a-Firm.

Significantly, however, the

TAKE ONE key executive off the dole queue, mix with a small firm poised for expansion, and if all goes well you should have a cost-effective recipe for long-term employment growth.

That at any rate was the theory behind Expanded Firm and the co-operation of the cosubstantial numbers of businesses (750 this year) and run with the co-operation of more than 20 universities, polytechnics, regional management centres and private consultants.

By comparison, Espand-a-Firm

was inevitably seen as somewhat elitist as well as being a test-bed for some of Belbin's earlier research. It was based on his personal hypothesis that the key to regenerating a depressed region " lies in taking the fullest advantage of the under-utilised the top end of the skill

Selection of candidates

Much, of course, depends in an experiment of this kind on the choice of company and exe-cutive—a point which Belbin was careful to take into account. Firms were chosen which ideally had some sort of "unique selling potential" and in which the manager foresaw the need for a colleague whose

trasting qualities and complementary skills, who have found their true teem role and have learned to pull together. Appli-cation of these methods and techniques became an integral part in the election of suitable husiness growth, investors will candidates for the development bave made a sound investment." of small enterpris

since set new objectives for its Programme (MEP), by contrast, ment Development Unit, 1 spending and subsequently re-fused further financial support training programme which all 9EL. Price £3 post free. It MSC is firmly committed to the this case it can last for enything small scale experiment wimed idea of "marrying" redundant between 10 and 26 weeks). The mainly at young artison entre-executives with small com- aim, as an MSC spokesman put preneurs.

equivalent to the unemployment pay and social security benefits which be or she would other-

which be or she would otherwise have been collecting.

Preliminary research at Durkam University Business School suggests that the Management Extension Programme is a cost-effective way of creating jobs and a more detailed report is expected to be published later in the year. The MSC certainly seems to prefer this approach to Expand-a-Firm, though in his booklet, Belbin argues that based on a total expenditure of £57,225 in direct sakaries plus national insurance, sataries plus national insurance, the cost per job at £719 is cer-tainly low "by comparison with the scale of public empenditure needed to create large production units in depressed areas."
Encouraged by his results
Belbin is turning to local authoritles and he secured a contract
with Cambridgeshire County

personal contribution and capa-city for responsibility was cap-able of enlarging the scope of the company.

Council for a new programme called CEBEE (Combined Employment and Business Expansion Enterprise). A local the company.

The assessment of such individuals was indivenced by a study carried out by the Industrial Training Research Unit (ITRU) — a research torganisation previously run by Belbin and Henley Management targets are met or at a specified college on the difference hetween successful and unsuccessful management teams. The most successful, it was found, contain executives with contain executives with contain executives and comple
Employment and Business Expansion Enterprise). A local fund innanced by the assisted company, private investors and company, private investors and company, private investors and company policies that lack cash will be issued shares redeemable at the issue price if employment argets are met or at a specified premium if they are not. Shares not redeemed will be passed to investors in the fund.

"If CEBEE succeeds in the local expansion Enterprise), A local fund innanced by the assisted company, private investors and com explains Belbin, "the local investor has made a worthwhile contribution to a community cause. If it does not succeed in

*Countering Unemployment The Management Extension is notifable from The Employtraining programme which all 9EL. Price £3 post free. It redundant executives attend also includes an assessment of ahead of their secondment (in Create-Your-Own Job, another

creating jobs . . but leads instead to high productivity and



A mixed experience

TWO YEARS ago Jim Robertson (above), proprietor of North Wales-based Dee Electronics, had just taken an Expand-a-Firm Fellow permanently onto his payroll. Robertson had been delighted with his payroll. with his performance over the previous 12 months and had decided that the skills of this former big company executive were well worth paying for out of the company's own

Unfortunately, however, this beneymoon period did not last and several months later the two men parted company after a clash of ideas.

after a clash of ideas.

Happily, the incident has not hampered Dee's growth for Robertson now employs \$2 people (compared with 20 previously), has just taken the next door unit to make room for expansion, and is currently in negotiations with the Welsh Development Agency to build his own purpose-built nait in a year's time. His erstwhile employee, moreover, has also benefited in that he is now self-emin that he is now self-em-

"His main contribution," recalls Robertson, "was to take the pressure off me. He gave me greater scope and more time to expand the company's activities in other directions. We have become more innovative and are helping our customers with design and development, as well as with straightforward manufac-

probably have taken on some body like the Fellow in any case, but admits it is easy to say this with hindsight. Belbin's booklet contains three other case studies of companies where the experi-ment paid higher dividends

(the names he uses are fictitious). Metal Turnings, for instance, a company in the labour-intensive business of bending metal tubes, took on an unemployed production engineer to help develop a new process for producing atominium tubes. A second Development Fellow was also hired on the commercial side, five additional employees were taken on, and the com-

were taken on, and the com-pany is considering building another factory.

Canvas Holdings had been trading in tents, blinds and shop awnings for 100 years before misfortune struck with the death of its managing director. A point was reached when the bank decided to call in its loan, but following the appointment of a Develop-ment Fellow to get a grip on the commercial and finan-cial side all 16 jobs were

The inventor/manager of Sensorgram was still in his twenties and worked with his mother in controlling a research-based business with a high-technology product geared to the luxury fashion market in the United States. Other developments, however, were threatened by a depres sion in this market. Belbin notes that the appointment of a 58-year-old Development a 58-year-old Development Fellow with commercial and technical skills, taken on to expand sales, almost backfired. So enthusiante was the owner about his entry it to the company "that he arranged for him to take a flat locally and to receive a therough grounding in the technical work of the company. A good deal of fact was pany. A good deal of fact was needed to enable the Develop-

ent Fellow to extricate himself and get on the road."

U.S. antitrust

How not to put a foot wrong

United States is widely agreed to be a legal minefield for the to be a legal internet of the uninitiated. But according to Dr Richard Haas and Lord Lloyd of Kilgerran—two international lawyers with wide experience in this field—there is a relatively simple but supis a relatively simple but sur-prisingly little known "clear-ance" procedure which may be particularly helpful to small UK firms entering into licensing agreements with U.S. com-

British companies contem-plating marketing or manufac-turing agreements will almost certainly need to take full legal advice. But the U.S. Depart-ment of Justice procedure known as the "business review letter" can assist them to establetter "can assist them to estab-lish whether their proposals will be considered anti-competi-tive under U.S. law. Though the Department of Justice is not authorised to give advisory opinions to private parties itself its Antitrust Division is, in cer-tain circumstances, willing to review the proposed business conduct of companies which

ANTI-TRUST legislation in the bave negotiated or are in the free to bring an aution or pro-United States is widely agreed process of negotiating licensing ceeding if it subsequently to be a legal minefield for the agreements.

the UK firm and its U.S. partner) to make a full and accurate disclosure of the pro-posed business conduct for which the review is sought. Background information, complete copies of all documents and detailed statements of all collateral or verbal understandings must eccompany the relevant data. Moreover, the Antibrust Division can ask for any additional information and

any additional information and can undertake an independent investigation if necessary.

Under the rules of the scheme, companies can only rely on a business review letter if signed by the assistant attorney general of the Antitrust Division or his delegate; that letter will not cover any party which does not join in the "request": it will state only the Department of Justice's intentions under antitrust legisla-tion at the date it is signed; and the Antitrust Division remains

The procedure requires the public interest.

The procedure requires the public interest.

After considering a request the UK firm and its US.

partner) to make a full and free either to state its present accurate disclosure of the pro
intention as to enforcement, or decline to make any states action it considers appropriate. The pusiness review request, all the information supplied and the division's reply will subse-quently be indexed and placed on a file available to the public though companies can ask for some or all of the information

some or all of the information to be temporarily withheld.
When these procedures have been carned out the file remains open for a year, after which it is closed and the flocuments either returned or disposed of at the discretion of the Antitrust Division.

Information on how to apply for a "Business review letter" is available from the British Oversess Trade Board, UT2/1B, Rhom 578. I Victoria Street, London SWIH OET. Tel: 01-215

In brief...

QUESTER Capital Management, a company jointly owned by ex-ICFC managers Andrew Holmes and John Spooner, stockbrokers Quilter Goodison and the National Coal Board Pension Fund, appears to have bucked the Business Expansion Scheme trend. While most BES funds this summer have been struggling to reach their minimum targets, Quester says its new Quadrant Development Capital Fund 1984 has successfully pulled in £2.5m. Not only was this close to best expectations, it makes the fund one of the higgest to be established so far this year.

Quilter Goodison's strong QUESTER Capital Manage-

Quilter Goodison's strong private cilent base, of course, was a big help and Holmes admits that "in the region of 70 to 80 per cent" of the sub-79 to 50 per cent "of the sin-scribers came through this source. It is nevertheless a significant fillip for the RES which, judging by the pro-vious response to funds, seemed to be getting cold-shouldered by investors.

Holmes, who also has plans to manage venture capital on behalf of institutions, insists

that he is looking for young growing companies.
"Although we might do one or
two asset-backed deals like
hotels later in the year to get a spread, we will not be run-ning this as a defensive tax shelter."

STEWART Fund Managers, meanwhile, is also pleased at raising just over film from 119 participants for the Stewart Business Expansion Fund 1984-85 which closed last week. Stewart regards the result as "very successful in what has been a difficult period for the launch of new funds for the nature," adding that the amount raised is big enough to allow a diversified portfolio of investments in the correst tax year.

Many eyes, however, will be locused on the Houre Octagon BES Fund which is due to close at the end of August. Unlike all other BES funds, Heare Octagon will specialiss in one sector (information technology)—so the response to this idea will be closely stehed by its competitors.

ONLY A nation which invented the "brunch" could also refer to the "branchise."

According to a rew layman's A-Z of franchising by John Admins and Kenneth Prichard Jones, this is an American term meaning a branch of the franchisor which itself operates in the standard style of the franchisee." The English term, the anthors add, is manused outlet. "F is for Franchising," as the booklet is called, is a kind of dictionary for prospective franchisees which, besides explaining special terms, tries to point to some of the problems which may be entering but sperates in the standard style before and after entering but

Notwithstanding the relatively low risk of fallure (compared with other business activities), the anthors warn that franchisers have been misled by unsernpulous salesmen. The book "is intended to help prospective trimehiseen ask the right questions and to encourage them to make sufficient investigutions into the franchises on offer."

MA

Speci

the conquertion

Bon Leed .

Arthur Yourse

BROWERS

incustore and

Prices courses

gener in the

F. W 749 More and Salaboure Control and Salaboure Control and Salaboure Control and Salaboure S

3:.2:5 32

KINESTON

tolicents the c

A major man

Tries Inc.

Moun Bade

The business

Baneral tre

Contract of

Bridge Aller

Arra .

Reflec

35.0

4.75

112. 3

Available from Azed Publications, 34 James Street, London WIM 5HS, Price

Business Opportunities

READERS ARE RECOMMENDED TO TAKE APPROPRIATE PROFESSIONAL ADVICE BEFORE ENTERING INTO COMMITMENTS

Recruitment in the USA

Michael Page International is the specialist division of Michael Page Partnership plc recruiting for financial positions based outside the UK. We now have a unique service to offer British companies with operations in the USA....

From a New York base we can now effectively recruit US-wide to provide either established or recently located companies with high calibre candidates to ensure the success of any US venture.

If you would feel more confident dealing through a renowned British consultancy for your recruitment in the USA, then call Mark Adams on 01-831 0431 or write to him at: Michael Page International, Sicilian House, Sicilian Avenue, London WCIA 2QH

Michael Page International Recruitment Consultants London New York Bristol Birmingham Manchester Leeds Glasgow

CONSTRUCTION **EQUIPMENT**

A leading European manufacturer of construction equipment, operating on a worldwide scale, wishes to appoint a small number of dealers for various areas of the British Isles.

It is envisaged that the dealers appointed would handle earthmoving equipment at the smaller end of the company's extensive range.

Interested companies, principals only, who would have existing operations in the construction equipment or allied industries and who could show substantial assets and a history of successful trading, are invited to approach:

> BINDER DUKER OTTE & CO (Ref: RAW/SS), Accountants Scottish Provident House

52 Brown Street, Manchester M2 2AU

FREE DISTRIBUTION **NEWSPAPER**

A major market leader, long-established in a metropolitan region seeks discussions concerning merger opportunities with companies of equal standing.

Reply in strictest confidence to

The Chairman, PO Box No. F5129, Financial Times. 10 Cannon Street, London EC4P 48Y

DO YOU MANUFACTURE D.I.Y. PRODUCTS WHICH FARL TO REACH THE CONSUMER MARKET? We are a major company with a national retail sales force seeking

We would his to take on any manufacture of the Irange of the seeking to diversify into new products.

We correctly operate in the U.K. D.J.Y. trade dealing closely with the major multiple groups and independent retailers.

We would his to take to any manufacture of the Irange of the would be interested in combining our strong brand name and marketing strength with their own production resources. We offer an exciting apportunity for mutual growth and profit. an exciting opportunity for mutual growth and profit.

Please reply in confidence, with product detail and literature to: Box F5121, Financial Times, 10 Connon Street, London EC4P 4BY

EQUITY PARTICIPATION PRIVATE AVIATION COMPANY

VENTURE CAPITAL

and marketing of cellular mobile relephones

FAST EXPANDING COMPANY

with enormous expension pro-gramms stekn Warking Director with previous experience to business maragement / importing / experting. Excellent references will be required in export of the application. Equity participation in the company will be considered.

FINANCE REQUIRED A small sorth total electronics company, with a sound order book, which be served as a sound order book, which too served as a sound order book of the start too served as a small substant of the served of the served order to the served order to the served order to the served order of the served order or

SALES AGENTS (experienced) required to sell advertising pens. Composition quality products will ensure high coro incs. Cell Di-319 1066 for details.

for development, manufacture

ZUG/Switzerland Formation, demiciliation and administration of Swiss and

foreign companies For further information call or von HOLZEN, Treuhand P.O. Box 540, CH 6301 ZUG Tel: CH-42/21 58 44

Tel: Monte Carlo 93/50 84 78

DIRECTORSHIP AND EQUITY PARTICIPATION offered for ESO.000 investment in well established expending business, incorporated 1970, minimum transport of million. Finglies to:

T. WILFORD PELL & CO, Charlesed Accountance 17 Newsbed Grove Nottingham NG1 462

Plant and Machinery

Debenham

Close to M4 at Llantrisant, S. Wales For full details apply:

Chemical Plant & Buildings

Fully equipped for complex processes

100,000 sq.ft. on 21 acres

Tewson

Chartered Surveyors, 3 Castle Street, Cardiff CFI 2RL 20222-398182

100% & 50% LB.A.s **BUSINESS EXPANSION** SOUTHEND Attractive development of nursery factories. Completion before March 1965 necessary Phone: 0702 34434 or write: Robert Leonard Group 512/514 Leonard Group Westcliff on Sea, Ensur FUNDS WARTED

for expanding companies in the Midlands Principals only need apply Write Box F5077, Financial Times 70 Carmon Street, London EC4P 485

> VAT ON IMPORTS Have you made errangements to meet this problem? We can assist you on acceptal Parasis. LONBRIDGE SHIPPING LITD

um £250,60u. Frompt replies t proposals for vieti tic/international projects to: JVIG (U.K.) LIMITED
27 Old Bond Street
London WIX 3AA
Telephone: 01-429 3823
Telep: 22749 (DIRSEC GI Int. Forwarding Append 17-19 Reduces Way London SEI 118 Tel: 01-403 3288 The 201112 Mr. David Robinson

BUSINESS OPPORTUNITY
A wall (mown interactional division forwarding opening) Socialed ID Queez,
with an established officiales, and owe
established officials, and owe rebusiness of the opening of the control of the
Membrish officials ying shareholding
to be agreed, Engelles, with experbusiness, Weekle is pill considered to the
Membrish Weekle is pill considered to the
Membrish Illness, 40 Caseon Street,
ECAP 45Y.

THE MONEY'S TIED UP LOOKING FOR ACQUISITIONS? IN STOCK'

JOHN CHURCHILL & CO "The stocktakers who really count" Landon-Birm.-Cartiff-Manch,-Tyne 01-662 6237 (7 lines)

Over 450 opportunities to acquire going concerns or business assets were available last year. Cost £45 p.a. Procusome and introductory affer from: Buthesis Sounds & Insulvency Supplement 20 Beldvin Street, Bristol BST ISE Tel. (1272) 272256

FOR A ONE HALF SHARE IN A RESTAURANT PROJECT KINGSTON UPON THAMES Write Box F6186, Financial Times. 10 Canaon Street, London ECAP 487

DISTRIBUTORSHIP

BRITISH/JAPANESE

COUPLE

WITH BUSINESS ACUMEN

Shortly 12 reside in Tonyo seek agency oppointments with British from wishing to do business in or from Janes.

061-747 6012

NEW INVESTMENT OPPORTUNITIES

MEN INVESTIBLET UTTUSTUSTIBLES
We addise commands seeking quitiv
funds, inclusing tax effective Business
anchesing tax effective Business
anchesing tax effective Business
anchesing tax effective
and institutional investors
withing to John our New Register
Shock company
Eavid Rutley
MATHERCOURT SECURITIES LIMITED
(Liceus of Decirity Institution
Limited Institution

OFFICE FURNITURE One of Britain's leading office furniture manufacturers to seeking people/agents/companies to estab-lish a number of selective distribu-tors worldwide. Products consist of wooden dasks, filing cablests

and hi-tech office computer sending. Contact Mr. T. S. Bracken CONTRAPLAN INTERNATIONAL LTD Somers Road Industrial Estate New Bilton, Rugby Warwickshire CV22 7DQ

Tel: flugby 0788 78421

AMERICAN SUBSIDIARY OF MAJOR U.K. GROUP Engaged in marksting/disambution of photographic products in all 50 states of this United States of America. Interested in inquiries from UK Comprises in fields of photo equipment, siectronic consumer 960ds and paranel computers leading to distribution of your product to the photo Ghannels and Paulies for

ribution of your product to Ghannel,
Replies to:
J. Gellen
Olrector and Ganeral Mamagar
GBB RMOTOGRAPHIC INC.
1776 New Highway
PO Drawer U
Ferminadale, N.Y. 11735
United States of America
Telesc 221837

G-CINE 1980 Bell 206L-1 Long Ranger 11 Helicopter Long Ranger 11 Helicopter
1800 hours total flight time. Full
12-pack engine modifications included. Fresh, plum red exercise
paint with dark rad interior. Sin
passenger configuration. 350 mile
range in under 3 hours.
Outsi controls, heaver, Fig. night kit
and cargo hook with en-board
weighing system. High skide. Public
Transport C. at A. till March 1987.
Fly away. Scotland
U.S. 3306.000
Jet Ranger welcomed in
out tackings
WHIRLYBIRDS/PROMOTIONAL
HELICOPTERS (0826) 55372

CONVERT RESIDUAL STOCK CONVERT RESIDUAL STOCK INTO CASH British Trace Auctions conduct fortnightly auctions of residual and excess concurrer and trade stocke to trade buyers including wholecallers and residents. Items sold with or without reserve realising true value with no risk to the varidor. All business conducted in attriotest confidence with all stocke fully insured and guaranteed immediate payment. For further information on how to capitalise on unwented stock PHONE Legal Table ON 021.570 7681

021-520 7681 BRITISH TRADE AUCTIONS
Tipton, West Midlands

DIRECTORSHIP (s) Sought by ex-senior director of a major public company, who is incerested in applying his skills and if appropriate funds, in a

small/madium sized enterprise. Write Box F6131, Financial Times 10 Cannon Street, London EC4P 4BY

COMMERCIAL MANAGER

REQUIRED

For Leisure Complex in Sussex

Proved expensed in Lisure industry required Other staff required of the staff required of the staff required of the staff required in day to day cannot prove the staff required in the staff required

OPPORTUNITY -EASTER 1985 A famous International

MAJOR

SPONSORSHIP

televised sporting event with prominent coverage in UK and USA Purther details: Box F5132, Financial Times 10 Cannon Street, London EC4P 48Y

SERVICING and MAINTENANCE London & Home Countles based Contractor seeks to scriptive or merge with an HVAC servicing and maintenance company.

Write Box #5136, Firancial

Times, 10 Cannon Street, London ECAP 4BY

BASED IN THE SOUTH WEST

Write Box F5128, Financial Times 10 Cannon Street, London EC4P 4BY

Inst. Cell Dis379 1006 for Scells.

U.S. GOVERNMENT SECURITIES, 'American broker specialising in retail marketing of U.S. Government bonds seeks tollaboration with London licensed dealer for Etitich market. Write Box 5.5134. Financial Times. 10 Cannon Street, London ECAP 487.

FORK 1.FT TRUCKS, used. 15,000, 12,000 & 10,000 capacity. Services, selected, immacciata. Strumpham Fork List Truck Ltd., 4-8 Hams Road, Saltley, Gerningham 86 10U, England, Tel: 621-327 5344.

SUCCESSFUL UNDERCAPITALISED

EXPANSION CAPITAL

AYAJLABLE

OFFSHORE

OIL & GAS

PUBLICATION

POR SALE
Phone 01-668 4163
or write to:
Box F512N. Financial Times
10 Casson Street, London ECAP 48Y

Growles Record Co. steeds only. EIEK short-term has to seeme high returns, Guster state available if required for tarsication entrepreneur body. Please write to Box F.5137, Phanchal Their, 10 Carmon Street, London SCAP 48Y.

INVESTMENT £50,000

 $E_{\theta\theta_{0}\phi_{0}^{\prime}(z), \gamma_{\theta_{0}}}$

Angust 28 1981

OPHER LOREN

dental points by h

in the dandard of translated to the translated t

to Francisco onting of

to called, it a be

or progra

which be

to rome of the state of the sta

wheel are be farely

n and 1 bremel

Comment active and in the tending the a how that of the

parent with other to

mittelliebt, the mir

ing franchist b

or it. The best -

deal to help proper

...... 24 Hr # trus sed to exect

The state of

a. was ison the fa

1 2 0 0 20 5 Ses

4: S. Maes

(1) (22) gette 1888

SESS EXPANSE CHAS WANTE

TON IMPORTS

ANTONIA SHIPPING

.....

3111

Business Services



SOFTWARE & SYSTEM

- **SPECIALISTS** * Portfolio Management
- * Insurance Broker systems ★ List processing enhancements
- ★ B\u00e4nking systems
- ★ Personnel systems

★ Accounting systems Ail OIS basic and Glossary work undertaken All running on the world office

automation leaders WANG PC

Call Timothy Brew 01-248 1100 OTI, Queens Building, Bishops Court, London ECZM 7EL

IS THERE A MARKET IN U.S.A.

How many times have you wondered if your product could be sold successfully in the U.S.A., but hastered. Now for a modest flat fee of 2500, we will research the market, competition, Customs deties, etc., and send you a writtee mport.

For further information contact:

For further information contact:
JOHN A. HARRIS & ASSOCIATES
Box 251 Newbell, CA. 91321 U.S.A. Telex: 490055 USA ONE



WE SPECIALISE

ortiolio.

Please send brief details in the Bret instance to:

The Chalman

PRESTIGE CONNECTIONS LTD.

27 Cobhan Road

Ferndown (adastrial Estate

Wimborne, Dorset BH21 7PE

Quote Ref: FT121



FOR A LIMITED PERIOD ONLY LONDON'S MOST EXCLUSIVE BUSINESS CLUB OFFERS

CORPORATE MEMBERSHIP TO INTERNATIONAL BUSINESS PEOPLE Prestigious serroundess close to Suctisighem Pelece, with compreheasive facilities covering every business, need TIGHT SECURITY with contreheasive facilities covering every business, need TIGHT SECURITY with continuous 24 hours a day 7 days a week fully manned operation, ensam non-stop worldwide commanication. Why pay the heavy overheads of your owner tondon office when you can ase the club at a iraction of the cost. The cleb provides everything from a deek for a day to euitae aed full conference facilities teliorad to your avery need. To be considered for membership places send full details of your compeny and its needs is stricted comfidence. All angulries will be considered by the Membership Commentee aed those selected will be invited to join.

WRITE NOW TO: lecretary, BBC, 94 Jermyn Street, London SW1Y GJL, England or telex full information to 8813255 JERMYN G

PRESTIGE EXECUTIVE OFFICES

CALL FOR PROMOTIONAL RATES

WORLD-WIDE BUSINESS CENTRÉS 118 Thomas Strand, London WCZ BAA

LOW TAX AREAS

Offshore Corporations
from £110
Complete Administration Service:
STRICT CONFIDENTIALITY
ISLAND RESOURCES LIMITED
Ballacurris House
Summerhill, Isle of Man
Tel: (6264) 28602/2820/282838
Teleo:: 628362 (SLANO G

OMMERCIAL DEETS £20,000 opwards collected—fees negotiable. Write Box F.4924, Fibancial Times, *9, Canson Street, London 8C4P 48Y.

Furnished assocutive offices
 Full services, secy, telex, co
 Accommodation address
 Short or long turns lesses
 Fourtees latt. locations

NEW CAR DISCOUNTS

(NOT IMPORTED) Low Leasing & H.P. Rates All makes, fast dalivery AUTOPLEET 041-636 1947 01-755 0058

OFFSHORE & U.K. COMPANIES IMMEDIATELY AVAILABLE
late of Man, Caribbean, Liberie, etc.
Fall, domicile & cominee services
Bask accounts opened
SELECT COMPANY FORMATIONS
Mk Pleasant, Douglas, sie of Man
Tal: Douglas (0624) 23718
Talex: 628554 SELECT O

TURNED DOWN BY YOUR BANK Contact us on 01-629 7363 tubants and Bankers specialising in:

 Commercial Mortgages for Hotels, Pubs, Rass/Nursing Homes, Investment Properties.
 Large Cleaning Bank facilities.
 Stock and Debior finance. Stock and Debtor finance.
 Company ocquisitions, Management by-outs.
 S. Finance for property.
 Lobus from \$50,000 — £tm+

YOUR OFFICE IN LONDON MAYFAIR LOCATION

Barling Finance Brokers
15, Quoru St., Maylait, London WIX SJN.

From £69.50 per month ideal set-ep for those starting e sew business or needing pert-time aan of offices. Full secretarial/ axecutive aupport, telephone answering, tales, mall, woord-processing, atc. Companies formed if mouling.

write 8ox F3590, Financial Times 10 Cannon Street, London EC4P 48Y Lloyd Adams 01-499 0321

ARE YOU PUTTING **COSTLY SOUARE FEET** INTO HUNGRY ROUND HOLES?

Heve a word with Office Roolan who will make your office epace mach Enquiries to: OFFICE REPLAN 188 King Street, London W6 Tel: 01-837 3094

LIMITED COMPANIES FORMED BY EXPERTS FOR £103 INCLUSIVE READY MADE £111

COMP ANY SEARCHES
EXPRESS CO REGISTRATIONS LTD
Exprovith House
25-35 City Road, London EC1
01-628 5434/5, 7361, 8936 Readers are recommend

before entering into commit

Franchises



The Greatest Growth Opportunity of the Decade... **Professional Computer Retailing.**

The opportunity is rare - The time is now.

After two years study of the U.K. market. Entré Computer Centers, America's fastest growing franchisor of retail computer centres. with over 250 franchises... is now awarding franchises to qualified business professionals in the U.K.

Owning an Entré franchise is a substantia opportunity. And if you have a track record of sales and marketing success, plus the entre-preneurial ability to manage a multimillion pound business, then Entré could be the greatest opportunity of your professional life

We provide a comprehensive, professional marketing programme. An approved product mix of the world's leading hardware and software. Extensive training programmes. Ongoing and dedicated Field Support. Advertising programmes, promotional programmes and tools. Plus a unique consultative systems sales

You provide liquid capital of £70,000 plus additional financing - and the ability, drive, ambition and professionalism to become part of Entré's rapidly expanding worldwide Network.

approach for profitable repeat business.

If you have the professional credentials that demonstrate you're one of the best - call Fiona Samson today on Slough (0753) 31222



Forthemostin personal computing. European Headquarters, 17 Bath Road, Slough, Berks. (0753) 31222.

Businesses for Sale

MARINE ENGINEERS Specialising in MoD work

Barclay Curie Ltd., located in Glasgow, manufacturer for some years of main engines and marine engineering products. Recent sophisticated missile building equipment experience.

Well equipped freehold factory of 130,000 sq. ft. with draneage and riverside quay. Adjacent site for expansion, it required. Skilled workforce.

For sale by British Shipbuilders as a going concern.

Enquires by September 11, to: M.J. Arnold

Arthur Young McClelland Moores & Co., Rolls House, 7 Rolls Buildings, Fetter Lane, London EC4A 1NH Telephone: 01 831 7130

GROWERS REQUISITES NORTHERN LIMITED

IN RECEIVERSHIP

Offers are invited for this established business in the agricultural supply sector. Operating from leasehold premises in South Lancashire and South Yorkshire, the company deals in chemicals, produce containers and packaging. Turnover of approximately 2225 million p.a.
Would be of interest to a purchaser with a similar business looking to expand its geographical sphere of influence. Enquiries to the joint receivers.

Telex: 888604

Arthur Young McClelland Moores & Co. A MEMBER OF ARTHUR YOUNG INTERNATIONAL

SUBSIDIARY

A major UK group wishes to dispose of this subsidiary company following an appraisal of the group's main interests.

An order book just under £2m.

Turnover around £4m.

north of England.

Please reply in the first instance to:

YORPAC **Yorkshire Meat Packers** Limited (in receivership)

Tornover approx £4 million per annum. 62 Employees.

KINGSTON LEISURE PRODUCTS LIMITED

The Joint Receivers offer for sale as a going concern the business and assets of the above. A major manufacturer of welded-frame BMX cycles based in Hull, the company has well-known trade names such as Dirtburner and

The business assets include a substantial, balanced stock of BMX components and contracts with major mail order outlets.

J. A. Taibot or A. W. Brierley. ARTHUR ANDERSEN & CO Bank House Cheriotte Street Manchester M3 4EU .Telephone: 051-225 2121.

F. W. Taylor
Arthur Young McClelland
Moorer and Co.
Silkhouse Court.
Yithebam Street
Liverpool L2 2LE



16

A. R. Marior
Arthur Young McClelland
Moores and Co.
Barchys House
6 East Parade
Leeds LS1 1HA

SPRINGWELL **CHALK QUARRY**

Freehold dry weather chalk quarry with buildings near mansworth, Herifordshire and M25 motorway. Enquiries to The Receiver and Manager, Ipe Ja Fairfax House, Fulwood Place, London WCIV 6DW. Telephone: 01-405 8422, Telex: 28984.

Thornton Baker

FOR SALE

ENGINEERING

A well equipped manufacturing facility, currently engaged in fabricating purpose designed technical products, well regarded in the market, for projects both in the UK and overseas.

- Excellent facilities and communications in the There are very attractive terms for the sale and the group invites interested parties to discuss the

The Chairman, Box G10019, Financial Times 10 Cannon Street, London EC4P 4BY

The business and assets are for sale of the above company, processors of pigs into becon and gammon, which is sold under the Yorpac label.

Fully equipped purpose built slaughtering and processing unit of 20,000 square feet simuted on a 6 acre site in Thirsk, N. Yorks.

 Customers include supermarket and catering establishments. Purchasers must be prepared to act quickly.

Enquiries to: GC Horsfleld, Price Waterhouse, Sun Allianee House, 9 Bond Court, Leeds LSI 2SN Telephone: (0532) 42204 Telen: 556312 (PRICEWATER-LDS)

rice aternouse

BERBROOKE FASHIONS LIMITED

Offers are invited for the business and assets of the above company which operates an agency network throughout the country with stock holding depots in East Dereham, Chilton, Leigh on Sea, Swindon, Herne Bay and Leeds. The accounting centre and head office is also in Leeds.

The company specialises in the sale of Ladies', Mens' and Childrens' wear and had turnover in the year to 31 December 1983 of £1,184,000.

Further information from The Receiver, Peter Flesher, Eldon Lodge, Eldon Place, Bradford BD1 3AP. Telephone: 0274 734341. Telex: 51611.

Thornton Baker

16

Upon Instructions received from the Directors of Tipompia Limited **ROSAN & COMPANY**

OFFER FOR SALE BY PRIVATE TREATY

As a going concern (offers in the region of £49,000 considered)
Complete stock of a leather wholesaler comprising a large qty of
leather briefcases, wallets, purses, suitcases, belts, belt sets, gift
sets, etc, etc (wholesale cost in excess of £82,000) ALSO

Wa are instructed to sell motor vehicle, order book, goodwill For forther details contact Asctloneers and Agents: ROSAN & COMPANY 144/150 London Road, Croydon, Surrey Tel: 01-688 1123/4/5

Microcomputer Dealer LONDON BASED

Established 4 years. All main dealerships held. Excellent potential. audited accounts to july 1984, averaging £42,000 per month january to May 1984 £155,000 + SAY Write Box 69892, Financial Times 10 Cannon Street, London ECSP 48Y

FOR SALE Usique opportunity to purchase n LONDON-BASED LITHOBRAPHIC PRINTING GROUP (3 companies). Woll-established Modern plant, premisea. Envisbi, clientele. Long-term contracts. Escal lent growth record, Turnover Etm-ali 3 Compenies trading profitably Write Box G9948, Financial Times TO Cannos Street. London ECLE 4819

BY ORDER OF THE RECEIVERS & MANAGERS PHILIP MONJACK FCA & KEITH D. GOODMAN FCA

MAJOR EARRING MANUFACTURER

Offers are invited for the assets and/or the business of a Major Earring Manufacturer situated in Hatton Garden. Established supplier to several major retailers. Sizeable stock, order book and trained staff available. Reply in the first instance to:

Keith D. Goodman FCA

Leonard Curtis & Co.
CHARTERED ACCOUNTANTS
PO Box 553 30 Eastbourne Terrace London W2 6LF Telephone: 01-262 7700 Telex: 22784 Curtis G. Marked for the attention of J. LINTOTT

Mushroom Producer

"Catfield Mushrooms"

Norfolk

Annual prodoction 2,000,000 pounds. 90 employees (40 part-time) at freehold premises at Catfield, Norfolk.

Euquiries to Martin L. Page: Peat, Marwick, Mitchell & Co. Holland Court, The Close Norwich NR1 4DY Telephone: 0603 20481 Telex: 975539



England.

O'BRIEN MACHINERY

IRELAND

LIMITED (in liquidation)

FOR SALE

The business and assets of a

ecturer as a going

premises in Doblin and Nenagh, specialised plant and

Liquidator, Mr. Ray King at:-

Reynolds Cooper McCarron

leading generating set

Principle assets include

machinery and stock.

Clanwilliam Court, Clanwilliam Place, Dublio 2, Ireland.

Telephone: 0001-609433

Telex: 30333 RMCD El.

For further details, please contact the Official

SUCCESSFUL ENGINEERING COMPANY

manufacturing a patented range of equipment for the major oil companies and British Gas Corp is available for acquisition as a going concern. This long-established company has a profitable turnover of approx £4m and employs 200 in a well equipped freehold factory in the North of England.

Write Box G10018, Financial Times 10 Cannon Street, London ECAP 4BY

ABBOTSWOOD PRESS LIMITED **GLOUCESTER** LITHOGRAPHIC PRINTERS

Assets and goodwill of this high quality business are offered for sale on a going concern basis. The business is located in an exceptionally well equipped modern works of 10,500 sq. ft. Single to four colour printing presses and own bindery. Large customer base includes mojor companies with well established order book. Turnover approximately £1m per annum. Enquiries to The Joint Receivers,

David Bird, Bristol BS1 4QR.
Telephone: 0272 28901
Telex: 444506

Maurice Withall, Fairfax House, Fulwood Place, London WCIV 6DW. Telephone: 01-405 8422 Telex: 28984

Thornton Baker

FOR SALE

The business and assets of a Brentford-based suppliar of dairy products to education authorities, the cash and carry trade and the retall sector are offered for sale as a going concarn by tha Receiver and Managar.

The Company has a substantial customer list and a current turnovar of approx £1.25m p.a. with potential for Improvement.

Interested parties shoold contact: Mr D. H. Gilbert or Mr S. G. Franklin at LEVY GEE AND PARTNERS 100 Chalk Farm Road, London NW1 8EH Tnl: 01-267 4477

International

U.S.A. COMPANY FOR SALE

32-year-old established injection moulding company with own product line. Gross sales US\$4.5million; profits \$750,000. Net worth \$1-million; price \$1.75million with \$1-million down payment.

Write Box G10001, Financial Times 10 Cannon Street, London EC4P 4BY

PROVENCAL FARMHOUSE, 2 miles Med. Spare weeks let for £10,000. Absolute gem. about £185,000. Kanneth Ball. 0273 690000, evenings 07916 3000.

DENTAL LABORATORY

EASTERN U.S. Earns 12% pre-tax operating profit oo \$5 million sales, Largeat merket share in territory. Purchease can probe by ba leveraged with mislman of \$400,000 cach-equity. Will sot respond to beyore not exclusive a balence askeet or letter specifying net worth.

Write to broker:
MANHATTAN VENTURE COMPANY
INCORPORATED
340 East 57th Street
New York, New York 16022

MINERAL OIL RECYCLING PLANT FOR SALE

IN CENTRAL/EASTERN AFRICA
Write Box G9400, Furencial Times
10 Cannon Street, London EC4P 4BY

CONSTRUCTION COMPANY IN GIBRALTAR FOR SALE Coestruction company with eader 100 workers end current contracts for over £1 million end capable Eaglish management everfieble for immediate solo. No dobts or liabilities. £100,000. Write 60x 010020, Financial Times 10 Cannon Street, London EC4P 48Y

NIGERIA Long established mediam-size build-leg construction company for sale in Lagos area. This ofter will ha of interest to Contractors wishing to set up an organization in Nigeria without houng to establish a new and unknown company. Unlimited potential. poteefial. Write Boa G9881, Financial Times 10 Canson Street, London EC4P 48Y

NACSTNESS F 14.2 COO ... A A CONTROL OF THE STATE OF THE

The Edinburgh Festival has never really come to terms with the visual arts, never accepted them fully as a central and necessary element in its make-up. The truth is, this year as always, that there has been no policy other than to expect something to turn up. And, of course, it has: a delicious Lavery exhibition, coming soon to London, at the Fine Art Society: young

Fine Art Society; young Scottish Expressionists at the 369 in the High Street; an exquisite show of Steiglitz photographs brought over from America by the Stills Gallery just a little further down the Royal Mile; vigorous new work by the excellent John Bellany ar the Mercury Gallery on the Mound: Demarcation at Edinburgh College of Art; Judy Chicago's Dinner Party in Britain for the first time at the Victoria Hall; Paolozzi at the Academy: Ian Hamilton Finlay at Graeme Murray in Scotland Street; John Cage and Basquiat at the Fruitmarket; Matisse sculpture (also coming on to London) at the City Art Centre; and much else besides,

Centre; and much else desides, all of it worth seeing.
But Scotland's most important art event of the year coincides with, rather than belonging to, the Festival—the reopening of the Scottish National Gallery of Modern Art in its handsome, splendidly adapted and ample new home, the former John Watson's School in Belford Road, a quarter of a mile beyood the Anglican Cathedral

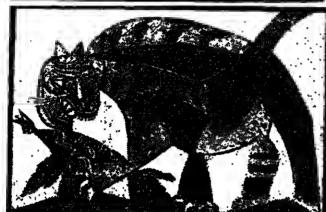
at the West End.
Its old home, Inverleith House, bigh up in the Botanical Gardens, was handsome too, but far too small to hold a major collection of international standoffer little more than the most frustratingly choice selections from the treats in store, and the smallest of exhibitions.

Altogether it has been an extraordinary yet oddly in-conspicuous story of success, conspicuous story of success, for the Gallery was instituted only in 1960 with a purchase grant of £7,500, which would seem for once to have been more an indication of Scottish optimism than providence, Douglas Hall, its first and only keeper has worked missales in Keeper, has worked miracles in building up so distinguished and special a collection, and the city is considerably in his debt. The signs are, bowever, that a certain local pride and pashers were a pattern perhaps even more, a natural curiosity, have been reactivated by the bullabaloo of these past few weeks, for attendances are now gratifyingly, unprece-

dentedly, blgh. The opening display is in two large parts, with the 12 galleries on the ground fionr given over to the permanent collection. They take us room by room from high cuhism to the new figuration, by way of expressionism and constructivism. pressionism and constructivism, surrealism and pop art along the way, the British development in counterpoint to the International, and we see some wonderful things: the Trail Bequest Vuillards and the Maltland Matisse, a Bonnard country lane, the great Kirchner art have always involved

Visual feasts of the Festival and beyond





Top, Paolozzi's "One Party in Three Parts" (1952 collage); and Picasso's " Cat and Bird " (1939) simplification.

Japanese Theatre, a perfect Mondrian, cubist etill lives by Plcasso and Braque. Epstein's amazing Consummatum Est lles in its special tomb at the corridor's end.

Upstairs the 10 galleries are full of a brave, didactic exhibition devised by Hall and his assistant keeper, Kelth Hartley, that offers the opening words of Genesis as a clue to the reading and understanding of what the artist take from the natural the artist takes from the natural world in reference and experience, to be transformed by the

raw materials of his own art into its own equivalent reality.

There is some pure abstraction, of course, but most of the work is clearly referential, the issue being rather to what degree it has been abstracted.

a fearsome César scorpion and a predatory Picasso cat.
"Creation" is sponsored by
IBM and remains on show until

So back to the Festival proper and to Demarcations at the Edinburgh College of Art. Richard Demarco, whose creature it is, has been for nearly 20 years a mainspring of for the kind of art fair-cumsymposium-cum-rolling exhibi-tion that Demarco bas always relished. But such things need money to set up and to pay the rent, and money bere has been

kept very short. Demarcation, therefore, is diffuse and disorganised, unhave come forward to take the spaces (Bernard Jacobson, the Scottish Gallery, Coracle, Robert Fraser, Gimpel Fils, Blond, Brompton, Murdoch Lothian, Bruton, Canada House, Carton, & Cooke, the Callerie Lothian, Bruton, Canada House, Garton & Cooke, the Galleria Cavallino from Venice). Between them they have brought along some very goods things—Albert Irvin, William Crozier, Bourdelle, Hodgkin, Brockburst, June Redfern— and have let no one down. Demarco bimself, his own gallery artists anart has brought in ANZART. apart, has brought in ANZART, a group show of new Australian and New Zealand art that is as and New Zealand art that is as uneven as any group show is likely to be, and as interesting, with god things in it (by Linda Marrinon, Maria Olsen, Lowe, Drummond, Trustum). It would have done better for itself by a more concentrated hang. Demarco has always stood on the principle that the first duty of the organiser in art is to make things possible,

art is to make things possible to give artists a chance; it is time the Festival gave proper backing to Richard Demarco. The Eduardo Paolozzi retro-spective at the Royal Scottish Academy (until September 10) which the Scottish Sculpture Trust, soon most unfortunately to be wound up) has organised

choice. Indeed the point of the exhibition, and its success, is to show us repeatedly as we move in honour of the artist's 60th birthday (Lufthansa, Pearson and Conran the sponsors).

It does go on to Munich,
Cologne and Breds, so I may
well have the chance to return through its several sections— the Heavens, the Earth, the Seas, Plants, Creatures, Man to it, at least in spirit. Its title, Recurrent Themes, is explicit reality is not to betray and abuse it, but rather to confirm enough; and through all the digressions and diversions of a long carrer, the love affair at once with junk and the highest technology, Desperate Dan and the experience of it in the offering of another. It is an intriguing show, full of splendid works, many of them most generous loans for the Scientific American, we see clearly that the principles of collage — breaking down, re-arranging, reassembling, break-ing again — inform everything he has ever done. With an this uncertain age: Barnett Newman, Miro, Klee upon Klee, some wonderfully explosive seas and flowers by Nolde, and the most extraordinary Van Dongen bougnet nudes by Spencer and Freud eide by side, flatfish by Bellany and Soutine,

the Barbican studio is in some ways a denial of the play's epic grandeur, in others an uncluttered exposition of its themes.

John Barton's flueot production is contained in an arena similar to that be used for Life is A Dreom: a buil ring effect of sanded floor with spectators hoarded off on four sides. The events are conducted with a cool and clipical precision which imagination as fertile, and an eye as quick as his, the work can only be rich and strong.

WILLIAM PACKER freshing after the powerful excesses of Peoderecki's opera and Ken Russell's film.

Achucarro/Elizabeth Hall

David Murray

For his South Bank Summer Music recital on Sunday, the panist Joaquin Achucarro played the complete Goyescus of Granados, preceded by the Bach-Busoni Toccata in C. Not so much a programme as a resounding collision, even with an interval between them; presumably they are works that Mr Achucarro just likes playing. but Busoni's elaborate piano-draft militaes against that. He is a redoubtable performer, always incisive (even un-gentle) and of unflagging power. In fact, the uniformily of his style when some considerable way toward concealing the dif-ferences between Bach-Busonl

ds a big organ piece, comprising a Prelude, an Adagio and a Fugue. Busoni's transcription is, as usual, in something like Nightingale") is over-long. The year, according to the results the idiom of the Brahms "Paga-frail, romantic Granados personomi" Variations — by turns ality is genuine, his Spanish recently completed by the

character of the music scarcely —and much of a muchness. The survives, and many passages successive numbers in Goyescas sound homeless without it. are distinguished far le Achucarro gave it a grand-scale style than by sentiment. personal fire and some flinty

In that reepect, Ach tone. There was little of the sense of improvisation that be-longs to the earlier movements,

Achucarro obviously knows and respects the Goyescas cycle ct, the uniformily of bis style ben some considerable way thoroughly (and bis recording tward concealing the differences between Bach-Busonl Classical Interpretion prize in Spain). It is a cycle that Inspires loyalty despite its a big organ piece, comprising diffuseness and the fact that none bas increased by more every piece in it (except the evergreen "Maiden and the

that for the artist to move away often far away, from observed

In that reepect, Achucarro disappointed. Each piece was delivered with panache, and with the occasional inner voices rubato and lots of nergy. Noth- nerable scale.

Scottish sponsors increase

The number of business sponsors for Scottish arts organisations bas increased by more of sponsors, the overall finanthan 10 per cent in the last year, according to the results

the charismatic cure of Loudon who was burned at the stake in 1634 after being condemned as sharply declamatory and busily gestures since if refined, his ing was whispered—this planist athletic, and heavy. The organ-piano-writing elegantly effective doesn't cultivate a pianissimo. character of the music scarcely—and much of a muchness. The the instrument by which the devil had possessed a group of closed too little expressive variety (except perhaps to the Ursuline nuns.
Whiting stripped the philoear of the faithful), none of the intimale quirks that can add sophical and intellectual elaborations of Huxley down to the fresh sense to otherwise repeti-tive writing. It was a curiously bone, contriving e succession sober performance, despite its force and its dedicated effici-ency. I think Granados thrives of hard, short scenes in which the nature of spiritual and physical ecslasy is illuminated against a hackground of secular brilliantly pointed up; there ency. I think Granados thrives was a modicum of etylish better on a smaller, more vulenvy, ecclesiastical plotting and economic expediency. I happen

> clal support for 1983-84 of her own spinsterish lust or a £836,579 is £71,075 down on the previous year. This is accounted order. He is indecisive on the for hy the loss of funds from question of religious supersti-two major eponsors of 1982-83.

East Berlin Ballet/Edinburgh Festival

Clement Crisp

When jesters and ideology version of Hamlet which had dressed, who were lugged across dramatic sonority of a dog-food take over Swan Lake, then the enterprise is doomed. When the staging further proposes Chaikovsky's integral 1877 text rearly 20 years a mainspring of (itself an ill-balanced first the Festival in its visual aspect, attempt at a ballet score) and often overwound admittedly uses this for an action, largely and sometimes unpredictable in lts energies and timing, but librerto and wbolly re-choreowonderfully resillent: now we graphed about "a young man begin to wonder how long it who has to be made submissive can keep going. The College in order to he integrated into the stage while the Princess
Mather and von Rothbart
impersonated Gertrude and
Claudius, and the pas de trois
was given over to the jesters is made for the Festival, with his environment," then it is its fine runs of gallery and doubly doomed. In the dismal studio, and the perfect place surroundings of the Edinburgh Surroundings of the Edition of Suran Lake (10 adopt a convenient misnomer) by the Ballet of the Komische Oper, East Berlin, in a version by Tom Schilling to a libretto hy Bernd Köllinger. Köllinger.

After the first 10 minutes of the matinee 1 suspected that I is not uninteresting and by no bad come to the wrong theatre means a failure. Good galleries and was watching some quaint

by mischance decided to use a perfunctory lake setting by Chaikovsky music. I came to eight of von Rothbart's henchrealise that the mistake not not mine but the Komische Oper's, and that the grey con-crete palace setting filled with exact fragment of the Black Swan pas de deux which came—auch being the original etruc-ture—in Act 1. gauzy costuming (the women be-bustled like Rod Huil'e Emu), with Siegfried, Prince of Denmark, emoting all over

men; the formal lyric tragedy devised by Petipa and Ivanov was, of course, nowhere to be found, save in a brief and in-

The Chaikovsky score was un-

rolled in all its un-pruned luxuriance, with only one inter-Claudius, and the pas de trois was given over to the jesters bruitish miming of the playscene, was indeed some cruelly mutated form of Swan Lake.

The action thereafter proceeded along predictable and Teulonically earnest lines. Siegifried was manipulated by his mother, and by von Rothbart as first minister and enchanter; Odette, his dream beloved, was a girl in an unbecoming sbift, with companions no less ill-

conduc ted a scrupulously de-

The choreography is uneventful, unmusical, and the dancers rattle through it in a style more energete than stylish, with rare evidence of any classic finesse in execution or understanding. The performers are clearly dedicated and wholehearted artists, but only two interpreta-tions seemed to me noteworthy. Angela Reinhardt, the Odette of

London Sinfonietta, Nexus/Albert Hall

Andrew Clements

An exotic confection for are neither intrusive nor of An exotic confection for Friday's Prom: the London Sinfonietta provided the substance, the Canadian percussion ensemble Nexus the lighter-weight filling. If it made for an over-long, slightly indigestible sandwich (with two intervals) there were at least two rewarding registers, included in the ing revivals included in the Sinfonierta's contribution.

Nexus'e three pieces, effortless virtuosity, may be delivered with panache and delivered with panache and dealt with swiftly. Music for Pieces of Wood is Steve Reich at his most unadulterated, written in 1973 just before he developed a taste for rich barmony and luscious textures, and exhilarating in its unadorned way; Cage's Third Construction is lively, colourful and quite cosy. Takemitsu's Rain Tree puts a trio of 'phones two marimbas, one vihraphooe two marimbas, one vihraphooe
—through its meditative paces; gentle swirling harmonles and overlapped pitch patterns which

might be deemed positively re-

Huxley had been fascinated hy the tale of Urbain Grandier,

to feel that in theatrical terms

Whiting never quita comes clean, or indeed comes off,

never explains whether Sister Jeanne is an innocent victim of

tailed account.

Lothar Zagrosek took charge any consequence. The Sinfometta had also of the remainder, ending with Liget's Adventures, Nouvelles Adventures. But Dominic Muldowney's Saxophone Con-certo, a Sinfonietta commission hegun with music of no great consequence — Hindemith's first Kammermusik, which thrives on ebullience and erreverance, but keeps itself within reasonable bounds. Oliver Knussen's second symduring last season, preceded the knockabout music theatre, phony has recently been re-leased on record, but repeated hearings do not lessen admira-tion for its precocious assurance (Knussen wrote it when be was 18) or surprise at the realisation of how firmly formed his mature style was even then; there are things in It, not least the quick cross-cutting of melo-dic fragments, that are promi-nent in his most recent music. How genuinely "symphonic" It is I still wonder; here the four settings for soprano — two poems by Traki, two by Sylvia Plath — were sung by Dorothy

the knockabout music theatre, and proved at first hearing a puzzling thing Indeed. It is at onec a superbly successful vehicle for the soloist, John Harle, and a colourful exposition of Muldowney'a highly fiexible and polyglot idiom. But there seems to be a deeper, less comfortable vein running through it a desperation about through it, a desperation about its mosaic of hig-band dance tunes in the finale, a wistfulness about its central variations, that suggests a more disquieting subtext. *

A much more concentrated contemporary music event at the ICA on Sunday provided to a high F at one point) over the opportunity to hear some-tonal splendour. The composer thing of the work of the 38-

year-old French composer Gerard Grisey. The ensemble, Circle conducted by Gregory Rose, played three of Grisey's scores from the 1970s, and immediately suggested a posi-tive and distinct creative perso-nality, with an ability to con-struct his music in large-scalestruct his music in large-scale, defensive blocks, with a well-marked expressive profile.

marked expressive profile.

Prologue for solo viola and
Périodes for seven musiclans,
are the first parts of a cycle
of five works each of which
expand on its predecessor. In
both solo and ensemble pieces
the processes of elaboration
and decoration were clearly
defined, and coupled with a
careful ear for sonority.

More impressive still was Tempus ex Machina, an impos-ing score for six percussionists lasting nearly half an hour, which retained a very firm hold on its material, worked to some thrilling and imaginative climaxes, and held this listener absolutally in its thrall. absolutely in its thrall.

The Devils/The Pit

Michael Coveney

Based on Aldous Huxley's The Devils of Loudon, John Whit-ing's 1961 play was the first new script performed at the Aldwyrh by the Royal Shake-peare Company. The revival in in Estelle Kohler's brave per-formance as the crop-haired prioress who is rattled by the power of ber own mastubatory orgasm and later exposed as a the Barbican studio is in some pious fraud.

Plath — were sung by Dorothy Dorow, favouring accuracy (up

the RSC evokes what one critic of the original production described as "the climate of a great play" without actually clinching the case. It is a reminder, perheps, that new plays can have scale, scope and amblifion in the Jacobean sense: even in the results of the original production. Barton's production is a sallow, restored the original production in the solid production. Barton's production is a sallow, restored the original production in the solid production. Barton's production is a sallow, restored the original production is a sallow, restored the original production in the original production in the original production in the original production in the solid production in the original production in the original production is all the work of creating him once his has had considered in the original production is all the work of creating him once his has had considered in the original production in the original production in the original production in the original production is all the work of creating him once his has had considered in the original production in the original production in the original production in the original production is all rather earnest, with laxed performance rather than character's trooping on and off a compellingly driven one. Else-original production is all the original production in the original production in the original production is all the original production in the original production in the original production is a sallow, restored the original production in the original production is a sallow, restored the original production in the original production is a sallow, restored the original production in the original production in the original production is a sallow, restored the original production in the original production is a sallow, restored the original production in the original production is all the original production in the original production in the origin

Neither is the ambiguity solved in 1961 Whiting intended tha extravagance play as a rebuttal of Royal Court socialist realism. Since then the magic of superstition, miracles, religious

fanaticism and sexual obsession has disappeared save for a few In reviving the old war borse, hrave flurries in the work of

Vanessa Redgrave unleased in the cinema.

Grandier is played by Peter McEnery as rather too decent a sensualist who finds God by creating Him once lust has had lts day. This is a sallow, re-laxed performance rather than a compellingly driven one. Else-where there is an entertaining



Peter McEnery and Estelle Kohler

Aug 25-30

The mean of the

ب درد ادت

Medition 1994

200

Walnut era

Be Later to 12

BARCLAYS HOME MORTGAGE RATE

Barclays Bank PLC announces to existing borrowers that from the close of business on 3rd September 1984 Barclays Home Mortgage Rate will be decreased from 13% to



Published by Barclays Bank PLC. Reg. No. 48839. Reg. Office 54 Lombard Street, London EC3P 3AH.

BASE LENDING RATES

	mu mar-u
A.B.N. Bank 101%	Hill Samuel \$101%
Allied Irish Bank 101%	C. Hoare & Co
Amro Bank 101%	Hongkong & Shaoghai 104%
Heury Ansbacher 10 %	Kingsporth Trust Ltd. 10 %
Associates Cap. Corp. 101%	Knowsley & Co. Ltd. 11 %
Banco de Bilbao 101%	Lloyds Bank 101%
Bank Haposlim 101%	Mallinball Limited 101%
BCCI 101%	Edward Manson & Co. 12 %
Bank of Ireland 101%	Meghraj and Sons Ltd. 101%
Bank of Cyprus 101%	Midland Bank 101%
Bank of India 101%	Morgan Grenfell 101%
Bank of Scotland 101%	National Bk of Kowait 101%
Banque Belge Ltd 10 %	National Girobank 101%
Barclays Bank 101%	National Westminster 101%
Beoeficial Trust Ltd 111%	Norwich Gen. Tst 10 %
Brit Bank of Mid. East 101%	People's Tst. & Sv. Ltd. 12 %
Browo Shipley 101%	P Ranhael & Same 1010
CL Bank Nederland 101%	R. Rapbael & Sons 101% P. S. Refson & Co 101%
	Rozburgha Goaraotee 111%
Canada Permn't Trust 10 %	Royal Trust Co. Capada 101%
Cayzer Ltd 101%	
Cedar Holdings 12 %	J Henry Schroder Wagg 101%
Charterhouse Japhet 101%	Standard Chartered
Choulartons 121%	Trade Dev. Bank 101%
Cltibank NA 101%	TCB 101%
Citibank Savings 112 %	Trustee Savings Bank 10 %
Clydesdale Bank 101%	United Back of Kuwait 104%
C. E. Coales & Co. Ltd. 111%	United Mizrahl Bank 101%
Comm. Bk. N. East 101%	Volkskas Limited 101%
Consolidated Credits 12 %	Westpac Banking Corp. 101%
Co-operative Bank 101%	Whiteaway Laidlaw 11 %
The Cyprus Popular Bk. 101%	Williams & Glyn's 101%
Dunbar & Co. Ltd 101%	Wiotrust Secs. Ltd 104%
Duncan Lawrie 101%	Yorkshire Bank 101%
	Members of the Accepting Houses
E. T. Trust 11 %	Committee.
Exeter Trust Ltd 11 %	1.661 debrairs 1.50 th 1.1101101
First Nat. Fin. Corp 141%	8.00%, Fixed rate 12 months 12,500
First Nat. Secs. Ltd 13 %	9.75% £10,000. 12 months 10.00%."
Robert Fleming & Co. 101%	? 7 day deposits on sums of under
Robert Fraser 11 %	£10,000 74%, £10,000 up to £50,000
Grindleys Bank #10105	8%, £50,000 and over 8%%.

7-day deposits 7.25%, 1-month 5.00%, Fixed rate 12 months 12,500 9.75% £10,000. 12 months 10.00%.

Arts Guide

A selective guide to all the Arts appears each Friday

Musicians' Orchestra conducted by Liubomir Romansky. Beethoven and Tchnikovsky. City Hall Arcade Court (Thur) (42800/2085).

SALZBURG FESTIVAL

Herbert von Karajan conducts the Vienna Philharmonic. Vivaldi and Tchaikovsky with Anne Sophie Mut-ter, violin. Large Pestival Hall

Herbert von Karajan conducts the Vienna Philharmonic, Schumann

and Brahms. Krystian Zimerman, piano. Large Festival Hall (Tue). Alban Berg Quartet: Mozart, Bartok and Schubert. Mozarteum (Tue).

WEST GERMANY

Music LONDON

BBC Symphony Orchestra and Sing-ers conducted by Pierre Boulez. Bar-tok, Berg. Pierre Boulez, and Debus-sy with Jessye Norman, mezzo-soprano. Royal Albert Hall (Mon). (5899455).

New Symphony Orchestra conducted by Antony Hopkins with Richard Markham, piano. Mendelssohn, Weber, Rachmaninov and Dvorak. Festival Hall (Moo). (9283191).

Boston Symphony Orchestra and Phil-harmonia Chorus conducted by Seiji Ozawa with Edith Wiens, soprano and Jessye Norman, mezzo-soprano. Mahler's Resurrection Symphony. Royal Albert Hall (Tue).

Academy of Ancient Music conducted by Christopher Hogwood with Em-ma Kirkby, soprano, Margaret Cable, contraito, Ian Partridge, ten-or, and Stephen Varcoe, bass. Bee-thoven and Mozert. Barbican Hali (Tue).

Les Arts Fiorissant directed by Wil llam Christie. Charpentier. St. Luke's Church, Chelses (Tue,

Australian Youth Orchestra conducted by Sir Charles Mackerras with Bar-ry Tuckwell, horn Tchaikovsky, Strauss, Richard Meale and Stravinsky. Royal Albert Hall (Wed).

Quaturar Viotti: Schubert (Mon 8.30 pm) Saint-Severin Church, Métro Saint-Michel.

lexandra Nomidou, piano: One Hour With Schumann (Tue 6.30pm) Town Hall of the 5th Arrondissement, 21,

Place Du Panthéon, Métro Luxembourg. Het Brabants Orkest conducted by Philippe Cambreling, Jean-Jacques Kantorow, violin: Mendelssohn,

Martin, Elgar (Tue 8.30pm) Saint-Roch Church, 296 Rue Saint-Ho-Guy Robert and Michel Amoric, lutes: Lute In Cootemporary Music (Wed 6.30pm). Musee Carnavalet, 23 Rue

Sevigne, Metro Saiot-Paul. Het Brabants Orkest, Brabant Koor conducted by Andre Vandermoot, Sheila Armstrong, soprano, Bernard Kruysea, baritone: Brahms (Thur 8.30pm). Saint-Roch Church.

Ars Antiqua de Paris – Oce Hour of Troubadour and Elizabethan music and Spanish Canconero (Mon, Wed 6.45pm and 9pm) Sainte Chapelle, upper part with medieval windows. Bookings 3495517 and on arrival.

Cologne, Gürzenich: Gürzenich Orchestra, conducted by Yuri Ahronovitch, Alexis Weissenberg, piano. Hindemith, Beethoven and Fortner (Mon, The, Wed).

VIENNA

Philip Swanten plays organ music of 16th and 17th century in the Vottv-kirche, Roosevelt Platz, on Monday. New Vienna Baroque Ensemble conducted by Heinz Prammer with Bernhard Biberauer, violin, and Walter Sengstschmidt, Harpsichord, Vivaldi, Corelli, Haydn and Mozart, Maria am Gestade, Salvatorgasse (Tue and Wed). (Tue and Wed), ichannes Kropfitsch, piano. Chopin, Rachmaninov and Brahms. Rosendorfer Scal (Wed) (656661).

New York Cheral Society (CAMI Hall): The summer-long series ends with Robert DeCormier conducting an all-Bach programme (Tue) and all-Beethoven programme (Thur). 57th & 7th Ave (573 0095):

NEW YORK

CHICAGO

Ravinia Festival: Kalichstein Laredo-Robinson Trio. Haydn. Mendels-sohn, Tchaikovsky (Wed): Larry Combs. clarinet, and Robert Web-rich, piano recital Schumann, Brahms, Ravel, Benjamin (Thur)-Highland Park (Tagasen) Highland Park (7284642).

TOMORROW'S ELECTRONIC COMPONENTS MAY RELY ON THIN LAYERS CALLED SUPERLATTICES

GEC invests in tools for future chips

By DAVID FISHLOCK

31 (145) 28 1984

The second secon

The track of the control of the cont

and the same

च का का भारति हैं च का का भारति हैं

10 17 22

0144

to the say

A Charles Jet

 $\Delta m_{\rm s} \gtrsim$

Januar Carlot

n ere i krijas

t de mitem

GEC—indeed British—missed advantageous," to quote Dr Cyril GEC's long-range research labo-out on the big immovations in Hilsum, chief scientist of GEC, ratory (which also comes under GEC-indeed British-missed silicon chips, which have been senton camps, which have been dominated by U.S. and peries of the sandwiches are Japanese research centres. But the company is plunging heavily on what it believes may emerge as the semiconductor technology of the 1990s and beyond.

This is a technology which some scientists forecast could some scientists forecast could some scientists forecast could be the chips of the future. Over supplant silicons for chips having 500 scientific papers on the subtens, even hundreds of millions of electronic commonents.

The excitement and optical properties of the sandwiches are fundamentally different from those of bulk material. "It's new physics," be says.

By 1982 the world of semi-conductor research recognised that Esaki's sandwiches are fundamentally different from those of bulk material. "It's new physics," be says.

By 1982 the world of semi-conductor research recognised that Esaki's sandwiches are fundamentally different from those of bulk material. "It's new physics," be says.

By 1982 the world of semi-conductor research recognised that Esaki's sandwiches are fundamentally different from those of bulk material. "It's new physics," be says.

By 1982 the world of semi-conductor research recognised that Esaki's sandwiches are fundamentally different from those of bulk material. "It's new physics," be says.

By 1982 the world of semi-conductor research recognised that Esaki's sandwiches are fundamentally different from those of bulk material. "It's new physics," be says.

By 1982 the world of semi-conductor research recognised that Esaki's sandwiches are fundamentally different from those of bulk material. "It's new physics," be says.

By 1982 the world of semi-conductor research recognised that Esaki's sandwiches are fundamentally different from those of bulk material. "It's new physics," be says.

By 1982 the world of semi-conductor research recognised that Esaki's sandwiches are fundamentally different from those of bulk material. "It's new physics," be says.

By 1982 the world of semi-conductor research recognised

of electronic components, compared with hundreds of thousands for the higgest integrated circuits sold today. But the challenge is not only the first billion-part chip. "The really exciting thing la that there could be some genuinely new obysics," says Dr Derek Roberts, GEC's director of research, and Lord Weinstock's ief counsel on new tech-logy. He believes fervently that the electronics industry is urgently in need of a better idea than "screwing more and more on to a single silicon

physics is forging new relation-ships between industry and universities in Britain. University departments which previously competed fiercely for funds are forming consortis in the hope that government will thus be persuaded to pay for the expensions of the pay for the expensions. tive new tools the new physics

The bonus could be a much The thinner and purer the more efficient partnership be layers of the sandwich, the more tween academe and industry, in which each understands more to be. clearly the part the other must play, and scientists move more

so the physics of low dimensional structures. It was opened to put into production, but the a decade ago by an IBM scientist, Dr Leo Esalt, a Nobel prize-winning physicist at the Watson Research Centre near New York Research Centre near New York. He had the idea of making "club sandwiches" of many very thin layers of different aterials,

The electronic and optical pro- his wing), five to 10 years, com-

The excitement is not only about much more densely packed chips, or switching at 100 times today's speeds, but about the possibility of combining in one chip the properties of materials previously hard or impossible to marry. At the thicknesses involved, the films behave like cling film, stretching or contracting to conform to the layer beneath.

by boiling materials in a very high vacuum. Their vapour, unimpeded by other atoms, streams off in straight lines to fall upon the scientist's target. Typically, the latest MBE machines — highly crafted pieces of engineering in stain-less steel costing as much as £500,000—lay down a layer ona atom thick each second. With careful timing the scientist can keep each layer to just a few atoms of absolutely pure mat-erial. Upwards of 100,000 would

the layer beneath.
In MBE, films are deposited

There are rival techniques, such as metal organic chemical vapour deposition (MOCVD) in freely between the two worlds. vapour deposition (MOCVD) in The field for this experiment which Thomson CSF in France to be kept pure and free from atms of oxygen. GEC scientists admit that

exciting the properties seem

each only a few atoms nuck. He they sat on the sidelines during called his sandwiches "superist an exciting period in which the

parties of the sandwiches are fundamentally different from those of bulk material. "It's n five different GEC laboratories

in a top-priority programme of atom engineering."

GEC has recently installed two machines for MBE technology at Wembley and plans to have two more mechines for MOCVD technology. As Dr Roberts sees the investment MBE is the most promising technique at present, but he is not yet convinced that MOCVD has been fully stretched.

In addition, he himself is pressing the suit of a third technology, a personal enthusi-asm based on using a powerful ultraviolet laser to lay down layers of atomic dimensions. He believes it could yet prove simpler to manage than its rivals. He calls it "the poor man's MBE."

This major GEC effort is also being married to that of two national centres of expertise in the technology, at the Royal Signals and Radar Establish-ment and the Martlesham laboratories of British Telecom. So confident is Dr Roberts that the new physics of sand-wiches — 'nanometre micro-electronics," as the Jepanese call it—will lead to major advances in electronics and opto-electronics, he is also n prime mover behind efforts to persuade the Science and Engineering Research Council to make a major national in-vestment in British universi-

The argument here is that, academically, Britain is well abreast of the new physics but its scientists have been obliged to rely on others to produce their samples on a "grace-and-favour" basis. It is proposed that the SERC should now make a substantial invest- of the world's foremost experts ment — as much as £20m, some in the field, Dr Mike Pepper, is say—to equip British universion the payroll of GEC's long-



Dr Cyril Hilsum, GEC's chief scientist, has recruited a team of 12 to investigate atom engineering.

the science of both the Claren-don Laboratory, Oxford's de

partment of physics, and the dapartment of metallurgy behind the GEC programme.

GEC. The metallurgists added

another proposal, to study the properties of the new materials

thus created, using their power-ful armoury of electron micro-scopes, and thus provide the physicists with the "process control" essential if they are

to learn to build novel materials

The academics will not be starting from scratch. For example, Dr Colin Humphreys of Oxford'a department of metal-

lurgy claims tha record for the

world's smallest writing, done by an electron-beam technique

he invented while in the U.S. He

claims he can write in lines

only I manometre wide and drill holes only I manometre dia-metre. A million of these lines

would fit within the width of a biro line; 1,0000bn such holes

ntom by atom.

major economies might be just- posal with one which will put ified in either case. Spurred by the evident and unresolved financial problems of SERC, the universities themselves have shown unaccusselves have shown unaccustomed readiness to adapt to a
new situation. Where once
each department would have
lobbied for its own facility, the
cost of this new entrant to "big

MOCVD, in a joint project with cost of this new entrant to "big physics" has forced a novel approach. Just as GEC's various research departments are pooling their effort in a common programme, built around the cluster of machines Dr Hilsum

From such consortia will also come tha technology for a new generation of production machines, it is argued. In Vacuum Generators of Crawley, Britain bas one of the four lead-ing suppliers, its rivals being in the U.S., Japan and France.

is buying, so university depart-

ments are grouping into con-

GEC already bas strong links with Cambridge University. One called his sandwiches "superlatices."

an exciting period in which the science was evolving from the base-1970s, convincing them when Dr Esaki first proposed these superlattices, no way of making them was known. Later he invented a way of evaporating the layers, called molecular beam epitaxy (MBE).

In fact, the novel electrical properties Dr Esaki predicted from his sandwiches did not appear. What appears What appears was evolving from the say—to equip British universities with the machines.

SERC is sympathetic but a seriously short of cash. It has been seconded to the cavendish Laboratory, Cambridge's department of physics. The Cavendish Laboratory, Cambridge's department of physics, and the department of engineering, and the department of physical sciences have all joined forces in making a proposal to SERC for a f2m of its most expensive areas of the university is aiming them was known. Later been lobbying government for an extra £98m to support of success.

Dr Hilsum has recruited a team of 12 — including a production engineer — to pursue from his sandwiches did not a new physics. This "chief appear. What appeared were other idiosyncracles" at least as even longer term view than say.

Oxford University is aiming to making the machines.

SERC is sympathetic but has been seconded to the Cavendish Laboratory, Cambridge's department of physics. The Cavendish Laboratory, Cambridge's department of physics an extra £98m to support of success.

Ox far with no sign of success. It is now conducting reviews of its most expensive areas of science in ment of physical sciences have all joined forces in making a proposal to SERC for a £2m conduction engineer has been seconded to the Cavendish Laboratory, Cambridge's department of physics. The Cavendish, the department of physics. The Cavendish, the department of engineering, and the department of physical sciences have all joined forces in making a proposal to SERC for a £2m contral facility.

The Cavendish the department of physics and wisches into useful devices, for embedding "wiring" within the structure, Colin Humphreys says. But Oxford at present has no machine of its own on which the contral facility.

OPTOELECTRONICS AND MACHINES

Light sensors

MACHINE TOOLS that form part of the automated factories two main components. First, of the 1990s could bristle with researchers design chip-bases tiny optoelectronic sensors that sensors which may combine in record wear of cutting mechan- on area of a few square milli-

sor David Whitehouse, head of the centre for micro-engineering and metrology at Warwick University. He is participating in a research programme with industry to design such sensors. By removing the need for a person continually to monitor cutting activities, it could hasten the trend to unmarked machine.

standing programmes of en-gineering co-operation between Britain and the USSR, Soviet clentists and officials regularly visit the Warwick centre, which started operations three years

And of the centre's research contracts from industry of about researchers et Warwick are from American companies. The warwick unit, which has a staff of 14, has also obtained grants of about 1400,000 from the meaningful information.

Science and Engineering Re. Science and Engineering Research Council,
Prof Whitehouse started the

centre after leaving the post of chief engineer at Rank Taylor Hobson of Leicester, an instrument maker. He says that micro-engineering and metrol-ogy (measurement theory) ogy (measurement to could become as important to engineering industry

ASTRONOMY

World's largest telescope

JAPAN will build the world's There are already observa-largest telescope on the island tories atop Mauna Kea operated of Hawaii by the early 1990s, by the U.S. National Aero-

the world's present largest tele-scope, the six-metre (18.6-foot)

will be constructed on Mauna

isms and the way that the tools metres a semiconductor laser, are ahaping metal parts.

That la the hope of Professor David Whitehouse, head of radiation.

The work of the centre has

the trend to unmanned machin-ing in engineering factories.

Interest in Prof Whitehouse's were, for example equipment work is not confined to that turns out metal sheets in a Britain. In one of the longest-steelworks.

The mechanisms record information about, say, the rotation of a cutting device in a lathc or the depths to which toola are making an incision in e piece of metal. Signals from the sensors are fed into a computer.

In this way, a supervisor could monitor the output of an array of unmanned machine tools while sitting in front of a computer screen on the other side of the factory.

No machine tools in Britain incorporate these types of sensors at present, according to Prof Whitabouse. But several companies in the machine-tool industry are showing interest.

ment on Tuesday.
The telescope will be equipped with a 7.5-metre (23.5-foot) reflector, bigger than

Kea on Hawaii island at a cost light years away on the edge of about Y20bn (U.S.\$32.6m), of the known universe.

according to an astronomers' nautics and Space Administraplan submitted to the Government on Tuesday.
The telescope will be Hawaii state government team. Britain and the Netherlands are also constructing a joint radio telescope atop Mauna Kea.

The Japanese telescope will have a resolution capacity of distinguishing a five-centimetre (two-inch) object from a distance of 100 kilometres (62.5 miles). Kodaira said. The telescope will enable astronomers to probe stellar objects more than 10 billion



Semiconductors

Japan opts for chips of the future

FUTURE electronic chips are likely to benefit from a mannsearch and Development Cor-

The process relates to the manufacture of integrated circuits from gallium arsenide. This is forecast to become the starting material for future high speed chips destined for the fourth generation compu-

Galllum arsenide allows iputers to calculate faster but use less power than con-ventional silicon chips. It is, however, expensive, a notor-iously difficult material to handle and has a problem that crystals usually have many

defects. Researchers at Tohoki University led by Professor Junichi Nishizawa have developed a process called photomolecular layer spitary. This is a way of controlling the growth of very thin layers of material—of the order of molecules thick—to build np

The process also operates at much lower temperatures than conventional ones—down to 350 degrees C compared with 600 degrees C. It needs an ultravacuum for operation and uses gases targetter onto the surface of a gallium arsenido substrate.

The researchers have already built transistors using the technique.

Moving shoes
CLARKS, the largest shoemakers in Enrope turning
ont 400,000 pairs of shoes a
week, is spending £3m on an
antomated warebouse extension at its factary in Street, Somerset. The computers which will control product flow in the factory have to cope with up to 50,000 different products as variations in box size.

SECURITY COMMUNICATIONS

Telephones on house alert

premises over phone lines. Base Ten Systems, the Fleet,

The telephone communica-tions and computing segment of the system, from BT, is called Red Care. It provides an alarm

carrier aervice over continuously available telephone lines from the protected premises, via the local exchange, through to a central monitoring station. The equipment on the protec-

terminal unit or STU, is per-manently connected to both the security sensors and the sub-scriber's telephone line. No dialling is involved and the line

nalling activity by one security system, which operates on two ment is recorded by the system, which operates on two for later examination, channels at frequencies too low for later examination.

The local exchange sea nalling activity by the security

. 'is activated.

The effect is to remove the

change within a deaction of a

transmission channel, comes into action. This allows the STU is also always connected to the special scanning equipment in what kind of emergency has installation and at the moment to use the telephone in the normal way and is maware of signals and structured. The subscriber can continue sensors (all 11 of necessary)

The subscriber can continue sensors (all 11 of necessary)

Security, Britannia Security made and way and is maware of signals and the activated. The Systems, Group 4, Honeywell sensors can acknowledge these sheld, Modern Alarms, Signals and the activated and the activated and the security special security. signals and the acknowledge- Seceurop, Security Centres and ment is recorded by the STU Sureway Security.

Up to 11 of the usual sensors, are connected over dedicated itself. For example, the loca-including smoke detectors, prespired sure switches, movement detectors, which kept secret.

BRITISH TELECOM is introductors, window and door opening forward data to the appropriate ing a security communications detectors, can be connected to system in Landon in conjunction the STU. When one of them On the starm company's central station, with several security companies operates, producing a simple ontact offer "central station" off action or a change of voltage identified and assessed and if security monitoring services for level, the first of the channels necessary the emergency ser-

vices, police and proprietor of the premises can be telephoned.

The problem is displayed in Hampshire electronics company, will provide about £0.5m worth of equipment.

The telephone communication of the image of t in a format that is specific to each subscriber. There is, therefore, no prospect of colors. each subscriber. There is, therefore, no prospect of commands operating efficiency. The
buying a system in order to
discover the signal format. At the exchange, an electronic scanning system continuously examines each of the consumers lines, descring cluding consumers lines, descring cluding consumers system continuously examines each of the consumers. change within a finaction of a second.

Then, channel two, a data transmission channel, comes into action. This allows the STU between £100 and £300 a year. These companies will sell, instal and service the total

> Great care has been taken amers over the security of the system

DKB ECONOMIC REPORT

18-month-old recovery in Japan gathers momentum as domestic demand picks up

This year's growth rate pro-jections for all of the OECD economies have been revised upward: examples — from 5 to per cent for the U.S., from 2 to 3 per cent for West Germany and from 3.5 per cent to 4.25 per cent for the entire group. The recovery of the Japanese economy is also quickening, led by vigorous expansion of the

After hitting a low point in February 1983, the Japanese economy has been in the process of recovery. It is looking increasingly bright as recovery of private demand has become clearcut.

Recovery of business capital investment has been particular ly pronounced. It was responible for 0.68 point of the 1.1 per cent gain in gross domestic private demand in the first three months of this year over the preceding quarter. Capital apending is believed to bave continued to be strong in the aubsequent months in the light of the trend of orders for ma chinery, a leading indicator, among other things. The Bank of Japan's short-term business survey (made io May) underscored the trend by showing that leading manufacturing concerns' capital investment programs for fiscal 1984 are 11 per cent ahead of their spend-ing in fiscal 1983.

Another area of recovery is housing. Housing starts stayed above the year-earlier level for four months io a row since Febrnary; the year-to-year increase was particularly large in April and May — 10.9 per cent and 16.8 per cent, respectively. Housing investment ap-pears to be coming out of the prolonged doldrums that set in following the second oil crisis, thanks to continued stability of building costs and a lowering of the bousing loan interest rate (city banks, for example, reduc-April, the first time in about five years that it has come down below 8 per cent). A continued moderate recovery is considered to be in store.

It also looks safe to assume that personal consumption will perk up gradually with summer sales and leisure activities as boosters. There are a few

developments that support this mption - increasing overtime income and employment, coupled with summer bonuses which are believed to have grown by a margin larger than last year's. Thus, growth of disposable income is likely to pick up gradually.

In the meantime, exports, the locomotive of business recovery, are maintaining a robust uptrend. On a customs clearance basis, they increased 20.3 per cent during April through June over the corre-sponding period of last year. Those to the U.S., a market that accounts for about one-third of Japan's total exports, posted an outstanding increase of 49.4 per cent. The growth rate, however, is expected to slow down in the months ahead because the U.S. economy is forecast to expand at a more sober pace in the latter balf of the year.

Despite a likely alowdown in expansion of exports, the Janase economy will continue to achieve balanced growth for the time being because domestic demand stands to assume increased strength from a pickup of not only corporate capital investment, but also of personal

Continued stability of prices

One feature of the present recovery process is continued stability of prices. In June, for example, wholesale prices remained flat from the preced month and went down by 0.4 per cent from a year earlier, while consumer prices in Tokyo dropped 1.0 per cent from the preceding month thut up 2.4 per cent over a year earlier). There are three factors that explain the remarkable price stability:

1) Fall of unit production cost due to moderate wage increases for two consecutive years (4.4 per cent in 1983 and 4.46 per cent in 1984), coupled with a sharp rise of the operating rate (an increase of 13.8 per cent between February 1983

Tel. 01-283-0929 Subsidiary in London: Dai-Ichi Kangyo International Ltd., Garden House, 18 Finsbury Circus, London EC2M 7BP, England Tel. (01) 920-0181 Associated Companies in London: Associated

New York, Los Angeles, Chicago, Parama, Dusseldori, Tarpei, Seoul, Singapore Representative Offices in: Houston, San Francisco, Toronto, Sao Paulo, Mexico City, Caracas, Buenos Aires, Frankturi, Paris, Madrid, Bahrain, Jalearia, Kuala Lumpur, Bangkok, Bejing, Shanghai, Sydney Subskillaries in: Los Angeles, Toronto, Amsterdam, Zünch, Hong Kong, Sydney Associated Compenies in: São Paulo, Hong Kong, Bangkok, Singapore, Kuala Lumpur, Jakaria, Manila, Sydney

Japanese Bank (International) Ltd., European Brazilian Bank Ltd., International Mexican Bank Ltd. Head Office: 1-5. Lichsannacho 1-chome, Chiyoda-ku, Tokyo 100, Japan Tel. 1031 596-1111 Branches and Agency In:

and May 1984).

2) Falling import prices owing to softness of primary product prices (including those of crude oil) as well as a continuously high exchange rate of the yen in comparison to the previous quarter.

31 Smooth improvement of supply and demand balance reflecting a moderate business recovery.

A sharp rise in prices is un-likely for the time being. As for wholesale prices, upward pressures will remaio weak as a whole because forces that work to drive up prices, such as the yen's depreciation and a tighter supply-demand balance ensuing from business expansion. are expected to be largely cancelled out by downward effects from the cost side. As long as wholesale prices remain calm, consumer price advance will consequently be moderate.

Balance of payments and yen rate

In the movement of international balance of payments, a rapid swelling of trade surplus stands out. While it was already gargantuan at \$40 billion at an annual rate during the January March period, it fur-ther balloned to a \$44 billion rate on the average for April through June. The fact that the aur-plus with the U.S. is par-ticularly prominent could re-kindle a trade dispute with that country and criticism of a yen undervaluation.

Since the non-merchandise trade deficit is stabilized at an annual rate of approximately Stobillion, any increase in trade surplus leads to an increase in current surplus also.

Despite the cumulative current account surplus, the yen's exchange rate against the dollar has been weakening since May. It dropped past the 240-toa-dollar level for the first time in 10 months io July. Among several factors that

keep the yen declining, an important one is expanding deficit in the long-term capital account that became notable in the last half of 1983. The longterm capital account deficit has London Branch: 4th & 5th Floor, P&O Bldg., Leadenhall Street, London EC3V 4PA, England

since almost offset or surpassed the current account sur-

Especially, the recent high level of long-term fund outflows appears to be caused by a broadening interest rate dif-ferential between Japan and the U.S. Measured in the secondary market yield of longmaturity government bonds, the difference between the U.S. and the Japanese rates broadened to 6.03 percentage points at the end of June from 4.55 percentage points at the end of last year. The difference in the inflation-adjusted rate broadened to 3.54 percentage points at the end of May from 2.03 percentage points at the end of last year.

As U.S. interest rates are expected to continue at a high level in the future, the weak-ness of the yen could be pro-longed, and that can harm the Japanese economy in several ways. The currency's weak-ness, first of all, could aggravate trade friction as it is taking place in the midst of a ballooning trade surplus. Second, it also could adversely affect prices through a rise in import prices. Third, it could trigger a fall of domestic bond prices and push up interest rates, putting a brake on the economy's expansion which is just starting.

Deteriorating bond market Already, the third scenario is

becoming a reality. The upturn of U.S. interest rates since early May has led the Japanese bond market to decline, result-Ing in a rise in secondary market yields. One side effect Comparison of GNP and Prices in Recent Economic Recovery

cellation of government bond issues scheduled for June and July owing to disagreement between the Government and underwriters over the size of a raise of the coupon rate. This in turn has made it also harder to float municipal and corporate Since the stock market has

of this development was can-

turned bearish along with the drop in the bond market, convertible bond issues, which were proceeding smoothly in both domestic and overseas markets, are showing signs of

The Japanese bond market is thus increasingly sensitive to the movement of U.S. interest rates. If the U.S. interest rates continue to rise and the yen and Japanese bond market continue to fall, one unavoidable consequence seems to be an across-the-board change in long-term interest rates. A rise in long-term interest rates, however, will not lead to a change in the monetary policy.

domestic business and prices. Upswing of business is leading to a surge in demand for operating and capital funds from smaller- and mediumsized corporations of late, and financial institutions are show-

ing willingness to meet the rising fund demand. Under the circumstances, the Bank of Japan has allowed city banks to increase lending by 39.9 per cent, or ¥2,780 billion over a year earlier for the three months from July to September. Corporate finance thus is expected to stay lax in the months to come.

106 --- 1883 1st gr-1984 1st gr 1976 1st gr ---- 1977 4th qr-1978 4th qr — 1975 1st gr-1976 1st gr 1978 4th gr ਰ 104 喜103-를 102· 101 1884 1st qr. 100 -

Note: The moves of real GNP and GNP deflator (seasonally adjusted, each) in the if three periods of economic recovery are shown in an index with a bottom taken as 100. Source: Economic Planning Agency, "Annual Report on National Account"

100 101 102 103 104 105 106 107

(Real GNP)

Talk it over with DKB. The international bank that listens.



The next DKB monthly report will appear Sept. 20.

TWO SOFTWARE COMPANIES AIM FOR GROWTH

Serving personal computers

and RTX Computer Services, that started life as departments within large organiza-tions are moving into the personal computer field. TMI Computing, part of the IMI Group, has introduced software which is aimed at decision makers in big companies. Called Host Inter-face Manager it allows IMI

personal computer users to take information from n

COMPANIES, IMI

mainframe computer and tailor it to the user's specific The idea is to make com-munication and transfer of information between main-frame and computer as simple as possible. A manager could, for example use any IBM PC in a building by inserting his special floppy disk into the machine. This contains details of the way in which the data is to be extracted from the mainframe. IMI Compating is a large IBM user running a complex on-line compater system for the companies within the £670m turnover IMI group. More than 400 terminals are

connected via telephone lines to a large computer system. In the past two years the com-pany has offered its services to companies outside the group and this business now unts for more than 25 per cent turnover. From September, RTZ Computer Services has available a software program for personal computers. Called MicroCAIRS, it is a way of

storing records and quickly retrieving information. This is a microcomputer version of a system which has been

on larger computers. The software is designed to handle information such as technical data, personnel records and statistics. An optional thesaurus can be incorporated when hunting for related topics. Misson CAIPS system, MicroCAIRS can handle more than 10,000 records—each up to 500 characters long. In May, the company sold part of its business to. McCormack and Dodge in

order to concentrate on the

development of its own soft-

larger organisations.

vare products mainly for the

This is the definitive show for all users of IBM Systems. All the up to the minute information on any IBM package, even an to all your questions, and its FREE! Just

(10am to 6pm) 5 Sep (10am to 4.30pm)

TBM compatible PC village. All the answers Olympia 2, Kensington, London 3/4 Sept

FINANCIAL TIMES

BRACKEN HOUSE, CANNON STREET, LONDON EC4P 4BY Telegrams: Finantimo, London PS4. Telex: 8954871 Telephone: 01-248 8000

Tuesday August 28 1984

Sri Lanka's ethnic rift

WHEN Mrs Thatcher visits Sri Lanke to open the Victoria Dam, be UK contribution to the Mahaweli River diversion scheme, she, too, will doubtless be struck by the depressing contrast between the economic and the political outlooks for the country.

On the economic side there is the gradual improvement brought about under President Jayawardene's more liberal administration, on the political side, the all-eclipsing Tamil problem. This has now acquired the same feel of Intractability as the divisions of Northern Ireland, as visitors to the Test Match have been reminded.

Moral high ground

The situation is not particularly bloody at the moment and in much of the island life goes on as usual but the events of the summer of 1983, when the majority Sinhalese inflicted uncontrolled violence upon the homes end shops of minority Tamils across the island, were one of those irreversible tragedies which create a tragedies which create a mirror-world of irreconcileble everywhere: terrorists -- free-

everywhere: terrorists—freedom fighters; law and order—
repression; political solution—
sell-out and so on.

So today the bulk of the debate within and outside Sri
Lanka focuses more upon the
behaviour of the security forces
as they try to counteract, the
activities of Tamil extremists
than upon the underlying problem that makes their deployment necessary. The question
of who has the moral high
ground has become more important than the question of
what the whole argument is
really about.

Any hope of restoring an un-

Any hope of restoring an un-easy modus vivendi to the Sin-balese and Tamils of Sri Lanka must involve three elements. Tamil terrorism bas to be more effectively suppressed at its source. The Sri Lankan security forces must become much more efficient, disciplined and discriminating in dealing with Tamil and Sinhalese lawlessness. The Government in Colombo bas to be prepared, because of the damage days last because of the damage done last summer, in go further than seems desirable or politically comfortable in devolving power to the regions.

spontaneous expressions of Tamil frustration. They are trained in, and supported from, the state of Tamil Nadu in Indie only a short boat journey

away. The Indian Prime Minister, Mrs Gandhi, badly needs the support of Tamil Nadu in her forthcoming parliamentary elec-tion, and it is understandable that after the treatment meted out to Sri Lankan Tamils in the past year, she is very loath to appear to assist in any way in suppressing their justifiable

Yet it is counter-productive

for her government to assist, as It has ably done, in bringing Tamil politicians and the Gov-ernment in Sri Lanka to the bargaining table, if these discussions are then made futile by terrorist operations supported from Indian territory. Mrs Gandhl should crack down much more toughly on the Indian end of Tamil terrorism. All reports from Sri Lanka suggest that the Government's troops are not up to the demand-ing task of containing terrorism without translating it into ethnic violence. The National Security Minister, Mr Lalith Athulath-mudali, needs all the balp be can get from nutside advisors

Advisors

So far this advice has been obtained, somewhat furtively. from Israel and from a private company in tha Channel Islands, There is a straight-forward case for the UK sharing its experience with Sri Lanks in attempting to fight terrorism nate reprisal.

in creating a more selective and

internal

Both these changes must be accompanied by a willingness of the Jayawardene Government to concede more of the regional antonomy that the Tamil political party, the TULF, has been demanding.

A cursory examination of the ethnic and religious makeup of the different provinces of Sri Lanka shows that a separate Tamil entity is a total impossibility. But there are areas, particularly in the north of the island, where Tamils are in the overwhelmingly majority and where a greater devolution of the content of the c There is a consensus among recent visitors to Sri Lanka that the Tamil terrorist movements are too sophisticated to be in his own government.

T may be that the best part of the world economic re-covery is already behind us. The intercational economy may now be near the peak of

the current business cycle, in which case it could be not until the late 1980s that a significant acceleration in economic growth

or any decline in worldwide The reasons for expecting a

decline at least in the rate of growth of most industrial coun-tries begin with economic statistics. The leading indicators which tend to foreshadow peaks and troughs in economic cycles, have started pointing to a slow-down, not only in Britain, where the recovery is already three years old, but also in the U.S. and Germany.

But blips in the statistics would bardly be e cause for concern on their own. Economic forecasters generally acknowledge that predicting the precisa is about the least reliable trick in their repertoire. Some of the Indicators which economists use for these predictions can be extremely volatile; stock market prices and investment intention surveys, for example, can turn out to be reflecting temporary factors like strikes or political tensions as much as underlying economic forces.

Unfortunately, there are deeper reasons for apprehensiveness. They can be divided into three groups. First, there are specific economic developments which bave occurred already, but will continue to exert an infinence

on events in the period ahead. Then there are the natural cyclical tendencies always pre-sent, to greater or lesser degrees, in market economies These are the fluctuations in output which occur because businessmen's decisions on stockbuilding and investment

All these forces could soon be pushing in the same direction -downwards

are influenced not just by tha present level of demand for their products, but also by their expectations about future demand, which are seldom

Finally, there are the policles pursued by governments and monetary authorities, During most of the post-war era, governments consciously attempted to counteract the cyclical tendenies in their economies; but since the political revolution of the late 1970s against Keynesian theories about demand manage-ment, the impact of government policies on the troversial and uncertain issue.

What makes the current situation discouraging, particularly for the 31m people who almost all European countries are still unemployed in the domestic demand has grown OECD area after the last receswho are even more dependent driving force behind recovery, on OECD growth), is that all of these forces could soon be pushing in the same downward direction and in a mutually mic recovery is sharply reversed in responsible to the first state of the first state reinforcing manner,

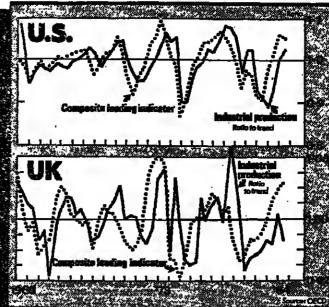
Consider first what has only two major countries which already happened. The most stimulated their domestic

Cadbury

takeover talk



THE WORLD ECONOMY



Perhaps the best is already behind us

Anatole Kaletsky takes a gloomy view of the possible outlook for economic growth and argues for a revival of cyclical management policies

ments has been the dominance of the U.S. economy in the current recovery. The leading role which America has taken is shown most obviously by tha gap of nearly 4 percentage points between GNP growth in the U.S. and Europe (see table). And the GNP figures actually understate the true force of tha U.S. locomotive.

Because of the strength of the dollar, much more than usual of America's domestic expansion has spilled over into overseas demand. The biggest beneficiary has been Japan (exports to the U.S. maka up 29 are cent of total arguments. 29 per cent of total oversees sales for Japan; only 9 per cent for Germany). But even Europe has recovered largely because of the booming demand for its exports.

If Europe had relied entirely

on home-made economic expan-sion, or if President Ronald Reagan had heeded Europe's moral indignation about budget deficits, the world might still be stuck in a self-righteous slump. For Europe's firm abstinence from reflationary domestic policies, failed to promote policies, failed to pro "spontaneous" recovery. sion (to say nothing of the activity, implying that the billions in developing countries growth of exports was the main implying that the As the table shows, this mic recovery is sharply reversed in America and Britain, the

economies with big fiscal ex-pansions in 1983. The difference of 51 percentage points between the growth of domestic demand in the U.S. and Europe this year, is one striking measure of the underlying strength in the

The warning implicit in all these statistics is that the world recovery may be quite vulnerable to a slowdown in the U.S. This is where the cyclical tendencies natural

These inhuilt forces presumably still exist, as they have throughout economic history, despite the forecasts or assumptions of steady growth built into many governments' budgetary plans—notably the 4 per cent growth annual rate from now until 1989 forecast recently by the Reagan Administration.

HOW THE REC

Source: OFCO Feanamic Outlank

Indeed, the financial markets, down. Cyclical downturns, once most economists, assume that the slowdown has already begun. The OECD's July forecasts showed America's growth rate declining to an annual rate of 34 per cent in the second half of this year and 24 per cent in 1935. The recent upward revision, to nearly 9 per cent, of the first half 1984 growth figures, suggests that the U.S. economy may still be stronger than the OECD expected; but this means that any eventual fall will be

tions are realised, next year's economic slowdown could be one of the sharpest in recent one or one snarpest in recent history. The effect of this set-back in the U.S. would be to cut 1½ percentage points from the industrialised world's total

Parily as a result of these natural cyclical forces, the U.S. which are confined to the economy is likely to decelerate immediate ontlook, do not show sometime in the next 18 months.

down to only 1.1 per cent by 1986 in the industrialised countries as a whole, 1 per cent in Europe, 0.6 per cent in the U.S. and 2.5 per cent even in Japan. That kind of decline, with its concomitant lengthening of the dnle queues, can be described In fact, if the OECD's predicquite unequivocally as a new

growth rate.

But the OECD forecasts,

hs.	the mean	effect of e	uch a slow-	
VC	ERIES	COM	PARE	
ofı	1983 3.4	1984	1985	
end	4.6	7}	3	

quarter of this year. And irrespective of whether America

of these possibilities now appear sufficiently remote to make it legitimate to use the past conditional tense.

In the U.S., the Reagan Administration continued to Administration continued to pump demand into the economy with ever-larger budget deficits well after the useful pumppriming effect had been accomplished. But by late 1985, which is the earliest date that a substantial tax increase to reduce these deficits could conceivably come into force, it will almost certainly be too late to reduce the budget deficit for the duration of the current economic

For a tax increase late in 1985 would further weaken the economy when—according to this argument—it was already sliding downwards under its own weight. Without a tax own weight. Without a tax increase, however, the natural tendency for investment to weaken and for consumers to save instead of spend during the later stages of the economic cycle, would be exacerbated by high interest rates, the strong dollar and growing worries about inflation. Thus, however much the President would like to prevent the U.S. economy from slowing below its "trend" growth rate of 3 or 4 per cent, Mr Reagan may be unable to dn anything to sustain this kind of growth.

In Europe and Japan, by

In Europe and Japan, by contrast there is scope to stimucontrast there is scape to stand-late further recovery. European governments certainly have no inclination deliberately to take over the locomotive role which America has been performing

so effectively.

If current policies and trends persist, domestic demand will be growing more slowly than total national output in every major country outside America in 1985, as the table shows. In other words, Europe and Japan may still be seeking export-led

started, do not suddenly reverse themselves a few months later. Europe and Japan themselves a few months later. If the world economy begins to slow next year, it is almost certain to perform even worse in 1836. For example, one leading forecasting firm, Wharton Econometrics, which broadly agrees with the OECD's 1985 figures, predicts a further slow-down to only 11 ner cent by synchronising economic cycles with the U.S.

> even as the U.S. economy moves towards recession. Even hy 1985, after four years of con-tinuous austerity European goveraments will probably remain unwilling to drive their econodomestic consumer spending stimulated by tax cuts

From an international stand-point, the most unfortunate corollary is that the economic cycles in Europe and Japan seem to be becoming fully synchronised with the American cycle. Were Europe willing now to pursue a more independent policy, economic finctuations in the two major economic blocs

30 C 20 C 3

ir Kovati

2-30 And 12

sept. Dir. -

tack Colonia

me eben im general in ge

Section 4.

Tame the Art of

El Stanto et al 1991 energy I

Beiden Gifter :

Sen Carlo

tier out to

E 2: 12-

TOWN HOLD

Disce ber ...

The Property of the Park

A Common of the Common of the

360.67

1.1

control of cycles, politicians today prefer to engrave their managed to achieve a controlled policies in granite—be they "soft landing," the impact of the U.S. slowdown on the rest of the world could undoubtedly have been offset by an acceleration of growth in other countries. In practice, bowever, both Japan,

Frustrations of the exam system

YOUNG PEOPLE whose plans the entrants are doomed to fail.

Besides being an Inappropriate way to determine young feel the more frustrated this people's life prospects, the year because of criticisms of the licly in January by the Secretary for Education and Science, Sir Keith Joseph et last dispelled a widespread illusion about the 16 and 18-plus examinations which have an increasingly decisive influence on techniques. life prospects.

The illusion was that the award of a specific exam grade testifies that the candidate possess a specific level of skill in the subject concerned.

If that were so, entrants fall-

ing short of the mark would at General Certificate of least have the comfort of being ary Education in 1988. sure that they had been fairly found wanting by objective and constant standards. They could also be sure that by resitting

altract mass entries are not graded by objective yardsticks of what they know and can do. Instead the grades are primarily determined by statistical rules which measure each entrant's performance only relatively against the performances of the competing candidates.

The level of understanding re-

quired to obtain a given grade can vary with subject, from one examining board to another, and over time. At 18-plus especially, the statistical boundaries separation the middle grades are so close tegether that variances in interpretation between people marking the papers can make the difference between a "good" B and a "poor" D.

Consequently the same level of knowledge and skill that gained cotry to higher education or a desirable job 12 months ago might well have been rejected this summer, or vice

versa.
Candidates just below the teacher who has boosted the performance of a whole class of teenagers competing in the

Besides being an Inappro-priate way to determine young people's life prospects, the present grading system—as Sir Keith bas said — serves to demotivate a good many teachers as well as pupils.

He therefore wisbes to change the system so that the grades reflect, as far as is possible, absolute standards of what candidates know and can do. He has so far spoken of making the change only at Island the change only at 16-plus, although not until a few years after the present separate exams for Ordinary levels and the Certificate of Secondery Educa-tion ere merged into e single General Certificate of Second-

But if grading by objective yardsticks worked well at 16-plus, there would be good reason to make a similar change

also be sure that by resitting the exam and improving their performance they would obtain a higher grade next time round.

Interpretation

The reality, now confirmed by the Education Secretary, is that they cannot be sure of either. Candidates in subjects which priate yardstick would make for an impossibly long exam. Experts are trying to find prac-ticable solutions to such prob-lems.

Arbitrary

But even if they succeedwhich they may nnt—the present inconsistent and arbitary system of grading will continue for a good many years.

In the meantime, however, employers could do much to reduce the ill effects by revers-

ing their policies of increasingly demanding exam successes as a coodition of recruitment.
Ability in the examination room has no necessary relation with the ability to do skilled work well.

The National Computing Centre has proved, for Instance, that teenagers without any pass grades at 16-plus can become good computer programmers and operators.
What is more, as Sir Keith

borderline may owe their bas also pointed out, if position, not to any fault of recruiters put less stress on their own, but to some chance exam passes, schools would be event such as another school's under less pressure from baving recruited an inspired parents to concentrate on examination subjects and so have more time to develop other attributes employers say they same exam. Moreover, from the want in young recruits, such as outset, a certain proportion of ability to work in teams.

With this year likely to be a record one for takeovers in Britain, it is interesting to see someone like Sir Adrian Cadbury saying at a meeting last week, in off-the-cuff remarks, that he did not think takeovers, per se, were a good thing. His statement appears to have struck sympathetic chords in the business community. munity.

With this year likely to be a

Asked to elaborate on whet he meant, Sir Adrian told me that he was answering a ques-tion at a press conference about whether he feared being taken over or whether be planned takeovers himself. He sald that te answer to any takeover was not e jazzy Public Relations defence but improving earnings

per share.
"After all if you are improving your earnings per share
each year by increasing
efficiency why should the share-

bolders want some other management."

As for taking over companies he said: "I am hardly likely to announce it through the columns of national newspapers

His basic point about take-overs, though, was there had in be a real commercial logic. Big often meant worse in his

"There are always human problems when you expand in size. You have to make sure there are enough people around to round the show."

"I suppose we are talking about the old sixties buzz word.

synergy. Where you can make two plus two make more than four, you are in business," be Sir Adrian justifies a recent

virtually none.

Adrian puts it, "we were able to help them in the same way in Canada." He believed, then, in a meshing of companies if there was some area where one company was weak

Men and Matters

"In the 1960s you had milk groups combining with breweries and so on," he said. He thought that any company wishing to take over another with a similar product range ought to think very carefully

This column, while in no way attempting a systematic sound-ing out of top executives, bad a little Bank Holiday ring-around and asked various executives what they thought of Sir

Lots of sympathy

Daniel Hodson, Financial Director of Unigate, said: "I certainly have a lot of sympathy with and am very interested in what Sir Adrian said. There are various criteria. If you took, say, at an average company which had been involved in takeovers I bet you would find that on the basis of improved earnings per share at 5 per cent a year since there are very few companies which have done

So often have we seen mergers which have just meent shareholders have just meant shareholders have pooled their assets, and not very much useful is done with the enlarged assets. I can think of a number of lustances where from the shareholders' point of view it is better to have separate ahareholders. Cadbury Schweppes takeover, shareholders' point of view it in the U.S. Cadbury took over Peter, Paul, a large confectioners. They had an established distribution network in the U.S. whereas Cadbury had "You must ask yourself what in the U.S. whereas Cadbury had "You must ask yourself what in the U.S. whereas Cadbury had "You must ask yourself what in the U.S. whereas Cadbury had "You must ask yourself what in the U.S. whereas Cadbury had "You must ask yourself what in the U.S. whereas Cadbury had "You must ask yourself what in the U.S. Whereas Cadbury had "You must ask yourself what in the U.S. Whereas Cadbury had "You must ask yourself what in the U.S. Whereas Cadbury had "You must ask yourself what in the U.S. Whereas Cadbury had "You must ask yourself what in the U.S. Whereas Cadbury took over its better to have separate a hard-holders' point of view it is better to have separate and the U.S. Whereas Cadbury had "You must ask yourself what its better to have separate and the U.S. Whereas Cadbury had "You must ask yourself what its better to have separate and the U.S. Whereas Cadbury had "You must ask yourself what its better to have separate and the U.S. Whereas Cadbury had "You must ask yourself what its better to have separate and the U.S. Whereas Cadbury had "You must ask yourself what its better to have separate and the U.S. Whereas Cadbury had "You must ask yourself what its had "You must ask yourself w

He also thought there was a for Brooke Bond when he made logic in the single product his remarks. But any takeover company getting together with which has a massive overlap in others.

In agreement

Possibly surprisingly Neil Shaw at Tate and Lyle also feels that takovers for their own sake are not necessarily a good idea. "Just taking over companies for size is like saying growth for itself is a good thing," he said.

What then did he feel was the logic of his own company's attempt to buy Brooke Bond.? "There is a communality of interest on the tea side particularly. Given our experience in sugar, with growing, packaging and distribution and our involvement in the Third World generally, there is a lot we can do on the tes side. With other areas of the company we per-haps do not have the experi-

ence."
Timber is becoming a glamour area but we do not have the management range to have the management range to enter this area. There would be no point in us attempting to go not a field where we do not have the necessary expertise. "You would sell off this part of Brooke Bond then?" I asked. "I imagine, this and the butchers' shops, we don't know about butchering."

Feels strongly

ers. They had an ed distribution network in them commended distribution network in them commended with the same way bere and there if it improves a lingular the same way bere and there if it improves that you should not companies unless you are sure bere and there if it improves a lingular the organic process."

The organic process." companies unless you are sure same group.

fore my day, Courtaulds, as you know, bought left right and centre everything in sight. I can tell you that there are an ennrmous number of headaches in stretching your wanagement to run concerns they do not know anything about." Owen Green at BTR seems to manage Green at BTR seems to manage and there are American con-glomerates like United Tech-nologies, or Jimmy Hanson's group. But whether these sprawling conglomerates only last as long as the entrepre-neurs who set them up I don't

"Of course, the current take-over boom does have an effect. Any chairman wh wakes np in the morning and reads that a company in his sector is making a takeover bld feels a certain twinge. He worries that his shareholders are going to say he is not dynamic enough. There is a strong element of pressure if everyone else is busy. But I do not feel one should go on a takeover spree just for short term results."

Often overlooked

David Donne, Chairman of Daigsty feels that the insti-tutional shareholders are often overlooked. "You have got a stustion now where the institutions are important share-bolders in any major company. Generally they like to stay with the management they know."

"Where a management is underperforming in one's par-ticular sector, one know's about it. But one has to restrain oneself from plunging in for the quick turnsround if there is to be no lasting benefit," he

"Then again," he said, integrating vertically because Christopher Hogg, the chairman at Courtaulds was even more emphatic that takeovers should not be entered into the carpet industry. In my view carpet manufacturers paid too much for raw materials because they came from the you think you are going to element of competition in

Observer

The fact that there may be another recession in 1985-86 is due largely to the third element in the present economic con-functure: government policy. Although some sort of cyclical downturn in the U.S. seems unavoidable at some point in the next year of so, it need not have implied recession, or even discomfort, for the world economy as a whole. conomy as a whole. In theory, the U.S. economy reinforce—one another. But this could have been allowed to kind of reasoning is totally decelerate quite gently, from a alien to the thinking of ecopeak level of growth rather nomic policy makers today. lower than the 10.1 per cent Rather than "fine-timing" rate registered in the first macro-economic politices to the

Better Business.

The reasons why successful companies come to

Lower overheads, Excellent communications, Skilled workers. Property investments of real value. The appealing quality of life.

Leading life assurance company Provident Life realised these benefits add up to a better business and a better life. Relocating from London to Hampshire, less than an hour away, substantially cuts overheads and many of its staff are attracted by the Hampshire lifestyle.

For advice on a successful new location, contact the Hampel Development Association 13 Clifton Rd. Winchester S022 5BS or phone 0952 56060. [Overseas +44 962 56080]



Where people like to work

Letters to the Editor

Labour costs and world markets

always shifts to offset changes in relative cost or price infiation thus preventing any loss
of international competitiveness. Yet such stability in the
real exchange rate is rarely
observed empirically. Many
other factors determine changes
to nominal exchange rates besides reletive infiation rates; for
the UK, North Sea oil, international capital flows and
changes to economic expectations have all had important are constant. The same real exsides reletive inflation rates; for the UK. North Sea oil, international capital flows and shout a continuing rise in UK changes to economic expectations have all had important effects in the past 5-10 years.

From 1977 to 1981 UK relative mormalised unit labour costs when German costs are constant. The same real exchange rate calculations for the Deutschemark show that it is already "under-valued" relative and allowing for offestive are constanted by ebout 60 per costs rose by almost 60 per cent tive to sterling by ebout 60 per costs. after allowing for offsetting exchange rate movements on the labour cost grounds. The loss of UK competitiveness is confirmed by a study of relative price inflation. On an average of

\$-1-1₂₋₁ 28 1984

d ton

i'u and Japan

to be

in our sing

The ricks

1000年11年

1.-4.5pt == 1.-48-7-1.-48-7-1.-4-1.5

1 127

- 107 AT

 $A = A^* = \{B^*\}$

Line of the 1.37

THE STATE OF

13 FE

Virginit

. .

the U.S.

Sir,—Samuel Brittan writes: the order of 40 per cent. (Note "ensuring that the country is that none of these calculations not priced out of world markets is based on any arbitrary startnot priced out of world markets is based on any arbitrary startise child's play" (Lombard ing date for PPP "equilibrium," August 20). This is clearly true but instead make use of a defit the nominal exchange rate tailed OECD survey on interalways shifts to offset changes national price comparisons up-in relative cost or price infla- dated as necessary by price

There is little doubt from this IMF measure. Since then some evidence that real exchange improvement has occurred, but relative to the OECD's 1975 relative to the OECD's 1975 ppr equilibria (even in the survey of purchasing-power-parity (PPP), sterling may still demic debate on "overshootbe 50 per cent "overvalued" on mg "has now recognised. Those transitions may even grounds. The loss freeling may even grounds. framing monetary policy should recognise it also. J. Hale.

Simon & Coates. consumer, wholesale, and export price inflation, sterling 1, London Wall Buildings, over-valuation against the trade-

on various air routes at present

held by British Airways, eg. Birmingham-Paris. Is it appro-

priate for such a transfer to be made on the basis of past profit-

Profitability of air routes

From Mr R. Hodge Sir,—Mr Bishop (August 21) indicates that because British Midland Airways allegedly has a better profit record on certain air routes than British Airways, the longer term security of these routes and the jobs that go with them should be entrusted to BMA.

As far as I know, the profitability of indivdual air routes is not the subject of public accounts. Each airlina presumably has its own methods of allocating expenses and these may not be entirely comparable.

What seems clear from the present public discussion, however, is that certain airlines are seeking to obtain the monopoly Edgbaston, Birmingham.

nade on the basis of past profit-ability where assumptions may not in fact be comparable? Given the generally poor record of monopolies in satisfying cus-tomers, one would hope that any decision by the Government would be guided by customers' opinions as to the adequacy of past and present regional air services rather than on figures prepared by the interested airline companies.

Park Mount, 259, Bristol Road,

BA's regional air services

From the Marketing Manager, UK Domestic Market Centre, British Airways.

Sir - Michael Bisheo of British Midfand Airways suggests (August 21) that British Airways is willing to operate regional air services "through cross subsidy or at a minimal

I do not know on what he Chris Swan.

beses this assertion. The fact PO Boz 10.
growth of our regional centres. Heathrow Airport (London),
are now profitable. Far from Hounslow, Middlesex.

reducing regional air services,

recession eases. Our customers need not fear for the continued operation and growth of our regional centres. We are there to stay, and to improve the service we offer them-profitably, of course. We are confident our future shareholders will endorse this policy.

The Royal Dockyards campaign

The Royal Dockyards campaign

From Sir John Mallabar
Sir,—On August 2 you printed a letter from Mr Miller at Devonport Dockyard expressing bis dismay at the conclusions of the Commons Public Accounts Committee. I have since obtained a copy of the report, from which I will quote. In 1968 I was appointed chairman of a committee set up to examine the systems of control and accountability operating in relations to, in effect, the Royal Ordnance Factories and the Royal Dockyards. We reported in Joly 1971.

We came down unanimously

Argument first arose as to which safeguard actions, such as existed before it came into own barriers is not acceptable for our own barriers. The of opportunity in trade is impossible with more than a some other industries. The internationally agreed MFA is much less damaging to the internationally agreed MFA is not report, from which I will quote. In 1968 I was appointed chairman of a committee set up to examine the systems of control and accountability operating in readvise until opposition is worn down. This and accountability operating in readvise until opposition is worn down. This would seem to have been the relations to, in effect, the Royal Ordnance Factories and the Royal Dockyards. We reported in Joly 1971.

We came down unanimously

and set out in details the argu-ments in favour of so doing.

In the case of the ROFs, the proposal was readily adopted and rapidly implemented. Developments which have since our recommendation was. The ROFs have since increased their efficiency and are earning good

and a civilian of high calibre appointed. We recommended that the post of Admiral Superintendent (under whose

Superintendent (under whose control the dockyards had previously operated) should be abolished and that only in exceptional circumstances should the views of the Area Flag Officer prevail over those of CED.

Note long after we reported, the contract with the civilian CED was terminated and the post has since always been filled by a naval officer. Wa did not feel that such an officer was likely to prove as effective in the task as a civilian I would emphasise that I intend no criticism of naval officers as such, cism of naval officers as such, but mean only that the experi-ence and background of a civilian appeared to us to be the mented. These took us to midmore desirable qualification.

We considered the aim of the dockwards should be "To complete the authorised tasks to plete the authorised tasks to the dockwards are used to be studied."

Are we to have another 10 of the investor protection has plete the authorised tasks to the dockwards are used to have another 10 of the investor protection has plete the authorised tasks to the investor protection has plete the authorised tasks to the investor protection has plete the authorised tasks to the investor protection has plete the authorised tasks to the investor protection has plete the authorised tasks to the investor protection has plete the authorised tasks to the investor protection has plete the investor protection has plete the investor protection has plete the authorised tasks to the investor protection has plete the authorised tasks to the investor protection has plete the authorised tasks to the investor protection has plete the investor protection the required standards and in years of this nonsense, and the minimum time permitted by the agreed estimate of costs,"

Are we to nave another 10 or investor proceeded has Opion Britton & Lumb, already commented on disunity 9, Leigham Hall Parade in the industry. Hir Stewart Streatham High Road, Streat in which our definition should be operated and the manner in

possible to implement our pro-

Developments since may be summarised as follows.

which was the first main report

We came down unanimously
in strong support of the suggestion that trading funds
should be established both in the case of the establishments
and set out in details the arguments in favour of so doing.

In the case of tha ROFs, the
that was not the best way of

our recommendation was. The Mallabar was not going to be ROFs have shoe increased their efficiency and are earning good profits.

In the case of the dockyards it became evident that naval interests were reluctant to see them put on a commercialised trading fund basis. Shortly before the committee began its sittings, the post of Chief executive Dockyards had been created and a civilian of high calibre report, the Brightling report. report, the Brightling report, and the Government of the day decided it would not go for a trading fund. The next report, that of Mr Speed in 1980 was then examined; it did make a recommendation for a trading fund . . and that was then put into study for implementation and was overtaken by the review of defence in June 1981." We are now over 10 years (and four Prime Ministers)

after the date when our com-mittee recommended that a trading fimds should be operating. There is no uniformity of I continue to quote: "As a practice in this matter and I result, further reports and furthink there is a clear need for result, further reports and fur-ther studies on what was the best thing to do in the new circumstances were imple-mented. These took us to mid-

atability without yet another study, but I cannot agree with Terminologically inexact which any conflicts which might him that there is no need for arise should be received. Wa change I would suggest it has arise should be rsolved. Wa change. I would sugg considered that it should be been delayed unduly. Meanwhile, the ordnance fac-

poscals and to have a trading tories flourish. fund operating from April 1974. (Sir) John Mallabar. 39, Arlington House, St James's, SW1.



"I got the idea from an article suggesting cars be sold in

Common Market in cars

cial Times are seldom anything on the other."
but well-informed and cogently
As a further argued. I regret that cannot be said of "Common Market in cars" which appeared on

It attacks the franchised dealer system in car distribu-tion and servicing and suggests it would be in the consumer's interest for supermarkets to market them "like other con-sumer durables." Whoever was responsible for that atatement

The raison d'etre of the EEC Commission's draft regulation on block exemption for motor vehicle distribution and servicing agreements is the recognition that the motor car is not like other consumer durables. For one thing, public safety is

involved.

Indeed, the draft regulation emphasises that the present system is indispensible "because motor vehicles are con-sumer durables which at both regular and irregular intervals require expert maintenance and repair, not always in the same

efficiency alone, such a form of co-operation cannot be extended It goes on to atress that the linking of servicing and distribotion "must be regarded as Brian Courtenay.
more efficient than supporting 201. Great Portland Street,
a distribution organisation for W1.

new cars on the one hand, and fotor Agents Association a servicing organisation which Sir.—Editorials in the Finan-would also distribute spare parts

alone.

American similarities.

victory in 1976.

partially succeeded. They have,

after all, won every presidential election since 1968

except for President Carter's

By now, they have also

and spoke of patriotism.

Owen, for the Social Democrats,

has said that patriotism is not

the monopoly of the Tories and Mr Neil Kinnock has been echoing his thoughts for the

Labour Party.

Even on welfare, Americe's Democrats now admit that the

system cannot go on as before,

It must be more selective. The

whole philosophy of Roosevelt's

New Deal is under challenge,

There is some familiar re-writing of political history. The Republicans say that it is not so much they who have changed. It is, rather, that the

Democrats have abandoned old principles.

At the Republican Conven-

tion in Dallas last week, FDR

was proclaimed as an American hero. So was Harry Truman, and, at times, even J. F. Kennedy. The Democrats, It was

said, went astray only under Carter and Walter Mondale,

As a further argument in sup-port of the franchised system, it points out that before a new vehicle is delivered to the consumer, it has to undergo a tech-nical inspection by the authorised supplying dealer specially equipped to do so.

It is not the consumer who would benefit from dismantling the franchised system on cars-not that there is any akelihood of it bappening. It would be opportunist "entrepreneurs" like the present parallel im-porters who have no investment in service and repair workshops or trained staff and carry no parts atocks.

As for the suggestion that the franchised system impedes competition, one need only scan dealer advertisements in the newspapers to see there is little evidence of impediment.

Although franchised dealers are not responsible for manu-facturers' recommended list prices, they have every sym-pathy with the argument that there cannot be a true commonality of prices in Europe so long as taxes, especially car taxes and VAT, productivity, econoto an unlimited number of mic circumstances differ as dealers and service stations." widely as they do, and currency widely as they do, and currency exchange rates fluctuate as they

World trade in textiles

From the President, British Textile Confederation, we firmly instend to expend as the Chairman, British Clothing Industry Association and the President, Knitting Industries'

> Sir,-Your leader on textiles (Aogust 15) overlooks some of the MFA, for example, the the reasons why the GATT ASEAN countries have inmulti fibre arrangement has remained in force, and why it will ing exports to the UK from
> be renewed in 1986.
>
> The MFA is an instrument for
>
> A further point is the lack of

Exferation of grey area"

loping countries—their guaran-teed access under the MPA to the markets of the industrialised countries has allowed them to develop trade which otherwise would have gone to the non-industrialised countries. Within

£36m in 1978 to £76m in 1983. A further point is the lack of the orderly development of reciprocity to the growing world trade in textiles and market access given by us under clothing. The multilateral disci-pline which it supplies is the study on textile trade high-main defence against a pro-lighted the massive protection of their home markets by mos restraints and unpredictable developing countries and NICs.

World Development Movement Sir,—The debate about tha pros and cons of the multi fibre arrangement (editorial August 15) is largely academic for the from all restrictions both withpoorest low income developing countries. All too often discussions about the MFA ignore the valuable contribution to these

Future pegotiations for MFA exempt the poorest countries from all restrictions both withthat was not the best way of resolving what the navy required from the dockyards. Eventually a decision was taken that tha main proposal of Mallabar was not going to be implemented."

Evidence to the committee continues: "A process was gone through in the MoD... and should the MoD... and should be an important and would be an important practical expression of the interpretation of imports from the sound to these declining export opportunities countries overall development and would be an important practical expression of the interpretation of imports from the section of these declining export opportunities countries overall development and would be an important of these declining export opportunities countries overall development and would be an important of important to the section of the low income textile producing countries. Under practical expression of the interpretation of these declining export opportunities countries overall development and would be an important or valuable contribution to these declining export opportunities countries overall development and would be an important or value of imports from the sound industrialisation.

[by I per cent between 1976 and 1980]. It is more than the MoD... and the low income textile producing countries overall development and would be an important or value of imports from the sound industrialisation.

[by I per cent between 1976 and Industrialisation.]

Bedford Chambers.

Covent Garden, WC2.

Lyon, a director of Legal and

General and outgoing president of the Institute of Actuaries, as

you reported on August 18, bas hit out et the sales hype of many insurance salesmen.

Insurance companies have

given overwhelming support to the formation of a new trade body, the Association of British

Insurers. Its aim is "to create one powerful representative

Money due to beneficiaries

Sir,—No insurance company recognises an unqualified liabihty to pay interest on money due to beneficiaries for every day it sits on it. Any payment, if at all, is ex gratia and entirely at the company's discretion, Even when ex gratia payment is made there is, more often than not, a long period during which interest is not paid. Interest rates vary widely and, what is more, tax at 30 per

From M. P. Richer

cent is deducted at source. How many beneficiaries (often elderly widows) realise that this this tax can often be recouped? rationalisation and reform. My investigations have alerted me to other shortcomings in insur-ance, which I must stress on

pact on Government, politicians and the public, operated by an effective permanent staff of high-calibre people under a chief executive." At the end of 1981 there were in force, according to the Life Offices Association. Is there not a need for "one powerful representative body" to protect

in the industry. Mr Stewart Streatham High Road, SW16.

and promote the interests of

From Mr H. Bloomer Sir,—Discredit where disment in the person of Mr D. credit is due! Mr Ashworth- Healey, which made that par Lord's statement (August 22) ticularly unfortunate decision. that it was a Conservative H. F. Bloomer.

Government which cancelled 25-28 Old Burlington Street, terminologically W1. TSR-2 is

inexact. It was a Labour Govern

POLITICS TODAY

For Republican, read Tory

By Malcolm Rutherford in New Orleans



President Reagan, accepting the Republican nomination for e second term, in Dallas last week

for Clem Attlee. Hugh Gaitskell and possibly even James Callaghan, It was only Michael Foot and his younger counterpart, Neil Kinnock, who took Labour out of the mainstream,

succeeded in taking the political es the Tories say today. ground to the right with them. There is a note of defection It was notable that at the Democratic Party convention in there is a note or desection in the air, too, though not to a third party. Some relatively obscure state politicians have already switched straight from Democrat to Republican. Presi-San Francisco last month the delegates held American flags Something similar has happened in Britain, Dr David dent Reagan is appealing to other closet supporters to come

over to the party of opportunity. Ooe who probably will not is Mrs Jeane Kirkpatrick, the U.S. Ambassador to the United Nations. Mrs Kirkpatrick is a Democrat. She says that in domestic politics she is still a welfare liberal. But she can represent a Republican admioistration on foreign policy because she thinks it is the sole legatee of the post-war aims of President Truman and General

Dr Owen will not like the comparison, but his own firm defence of what Labour foreign policy used to be has a lot in common with the way Mrs Kirkpatrick is behaving now. She has no interest in defecting yet. but if ever she wanted to be in line for the Republican succession, she could do it.

To revert, however, to the Republicans and the Tories. Carter and Walter Mondale. The similarities in the pro-it sounded like the Tories grammes are uncanny. They is also a marked convergence in pouring out their admiration have the same heroes, princi-attitudes to new technology.

pally Hayek. The themes are interchangeable: extension of home ownership, reforming the nation's schools to give more power to the parents, enter-prise zones, reduction of bureaucracy, and reducing public expenditure as a per-

centage of GNP.
Where Mrs Thatcher had a Falklands factor, the Repulicans think they have a Grenada factor. The American Intervention in that island is repeatedly held out as an example of the country's renewed decisiveness in foreign effelrs, and as an implicit justification for U.S. action in other parts of the

New England," which is one way of saying that the old East Coast establishment no longer controls America, just as the old establishment no longer controis the Tory Party.

Mrs Thatcher and Mr Reagan

are again at one in their aim to turn the country round. The Prime Minister always said that she would need a second, pos-sibly even a third, term. The President talks now about the need to complete the unfinished agenda. They meet not only in their attempt to re-establish

Here, government interven-tion is totally in order, Indeed, it seems to be an Anglo-American conservative common creed that, without more public investment in research and development, economic growth will come to a standstill. The Tories and Republicans have taken over as the promoters of high tech, even hirs Thatcher has not been as public about it as she might have been. Labour and the Democratic Party are condemned alike for seeking to protect old jobs and an old way of life. The conservatives in both countries have become the radicals, while Labour and the

Democrals have become the conservotives.

There is a final parallel between Mrs Thatcher's Tories and President Reagan's Republicans, Both parties are now involved in the struggle for the eventual succession, and it concerns more than personalities. The concept of wels and dries" does not exist in America. Instead. Republicans talk about them Instead. selves as conservatives, moderates, or liberals. But the divisions are much the same. Mrs Thatcher has not quite eliminated the wets in the Tory tradition, as Mr Francis Pym demonstrated in his recent book. Nor have the moderates been entirely extinguished in

the Republican Party.
Vice President Bush bas played the same role to Mr Reagan as the then Mr Whitelaw did to Mrs Thatcher in her first term: a moderate who has been utterly loyal to a right-wing chief. He may

appreciate the full extent of the Administration's concern about thet area. The Republicen platform notes: "El Salvador is nearer to Texas than Texas is to New England," which is one way of saving the saving t party and the consolidators. That is probably the question for the Republicans next time. There is a group of young hawks whu would like to push the party ever rightwards, using the methods — such as control of the manifesto—by which the Far Left tried to take over the Lebour Party. But it is not yet certain that Mr Reagan will encourage them. He might even go for a major arms treaty with the Soviet Union, which would upset them a great deal. President and Mrs The President and Mrs Thatcher could turn out to be consolidators in the end.

If you want a high interest cheque account, here's your first check.

ACCOUNT	INTEREST NET OF BASIC RATE TAX*	GROSS INTEREST RATE OR EQUIVALENT*
ABBEY NATIONAL CHEQUE-SAVE NEW RATE FOR £2,500 +	894%	12.77%
SCHRODERS — SPECIAL ACCOUNT FOR £10,000+	8.21%	11.73%
TYNDALL - MONEY ACCOUNT	7.64%	10.92%
M & G / KLEINWORT BENSON – HIGHER INTEREST CHEQUE ACCOUNT	7.60%	10.85%
SAVE & PROSPER PREMIER HIGH INTEREST BANK ACCOUNT	7.35%	10.50%
BRITANNIA / CATER ALLEN — HIGH INTEREST CURRENT ACCOUNT	7.33%	10.47%
BANK OF SCOTLAND – MONEY MARKET CHEQUE ACCOUNT	7.33%	10.47%
BARCLAYS - PRIME ACCOUNT	7.27%	10.38%
MIDLAND — HIGH INTEREST CHEQUE ACCOUNT	7.27%	10.38%
Quite simply, £2,500 plus in Cheque-Save	Know the nar	ne.

Quite simply, £2,500 plus in Cheque-Save gets you a net rate you'll find hard to beat in any other cheque account, even those offering money market" rates.

No restrictions.

Enjoy immediate access with your own cheque book without restrictions on the number or value of cheques you may draw on your funds.

• Interest rates shown are the annual percentage rates where interest is compound-ed. Source of comparative Money Market Bank Accounts, 23rd Aug. 1984.

Abbey National pays interest net of basic rate tax and the gross equivalent is shown for comparison only.

Interest is calculated on a daily basis and credited

half yearly or on closure. Cheque-Save balances below (2,500 earn interest at 6.50% net p.a.

Chea

To: Dept. C.S. 12., Abbey National Building Society, FREEPOST, United Kingdom House, 180 Oxford Street, London W1E 3YZ. I/We enclose a cheque, number in a Cheque-Save Account at my/our local branch in. Please send full details and an application card. Minimum investment £100. Maximum £30,000 per person, £60,000 joint account. I/We understand that rates may vary and interest will be credited to the account half yearly. Full name(s) Mr/Mrs/Miss ABBEY NATIONAL BUILDING SOCIETY, ABBEY HOUSE, BAKER STREET, LONDON NWI GIL.

Remember that with Cheque-Save

you get all the security of Abbey

Come on in now to the benefits of

Cheque-Save. Just complete the coupon

and send it to us with your initial investment.

just fill in the coupon.

National and its national branch net-

work. You know where your money is.

Tuesday August 28 1984



Terry Byland on Wall Street

Turbulent time for airlines

STOCKS of U.S. demestic siriting companies have the unenviable distinction of having underperforme against a rocketing courty market over three exciting weeks on Wall

After a brief surge which lifted ome to within halling distance of their 52-week peaks, prices turned back, and UAL (United Airlines). AA (American Airlines) and TWA are now below their early-August

The upset was caused first by the fear, and then the reality, of a return to fare-cutting on domestic routes, which plagued the industry

and its profits a few years ago. Nervousness on this point was sufficiently disturbing to outweigh the benefits to stock prices of weak-ness in the price of fuel, the major

cost factor for airlines.

The stock market's worries came to a head wher. People Express, the latest and sharpest of the price-cutters, announced that it was moving in or, the lucrative East Coast to Chicago routes. These were worth about \$716m in passenger revenues to the industry last year, or nearly 2 per cent of total airline traffic.

People Express started the com bat among the airlines this month when it commerced its Newark to Chicago service, with five flights

daily.

The New York area to Chicago routes alone carried 3.6m passer gers last year. The other major routes involved are those between Chicago and Boston, Philadelphia Baltimore and Washington DC.

Dr Julius Maldutis, who covers the airline industry for Salomon Bros, comments that the battle for the East Coast to Chicago market will fail largely on AA, UAL and TWA - with Capitol and Midway, two of the smaller carriers, also fac-

People Express.
The latest statistics from the Civil Aviation Board (CAB) show that AA had 34.3 per cent of the Chicago to New York traffic, and 38.4 per cent of the traffic on the Boston to Chicago route, which is the second in importance of the group. UAL bad 39.5 per cent and 48.4 per cent respectively, and TWA 13 per cent

has risen by about 23 per ceot since the end of July, compared with a gain of 11 per cent in the Standard and Poor's 400 stock index.

AA, which was 15 per cent up early this month, now shows a gain of only about 2.8 per cent. The same trend has been followed by the other leading players in the East Coast

to Chicago airline market.
It could be that the stock market is oversimplifying the situation. The growth pace of the East Coast to Chicago route is still strongly outperforming that of the industry as a whole. This will nelp the strong compensors to handle the new competition. In 1983 traffic on these routes expanded by 14.4 per cent, according to the CAB, against only 6.3 per cent for the industry overall.

Dr Maldutis believes that the entry of People Express will not seriously affect the market share of either AA or UAL. The other carriers will take the brunt of the new competition, which could force them either to the margin or possibly out of this market altogether.

This must include TWA, which held a 28.2 per cent stake in the East Coast ta Cbicago traffic as recently as 1978, but now has only 13 per cent. Its retreat has been particularly rapid on the New York rouses, where its share had dipped from 29 per rent to 13 per ceot over five years, and on the Boston route where it has fallen from \$1.6 per cent to a meagre 6 per cent.

The stock market has already be gun to reflect the new threat to TWA's East Coast to Chicago business. The stock, which jumped 16 per cent at the beginning of August, has been underperforming since then and now shows only a small gain over the period which has seen industrial stocks surging ahead.

Probably a greater risk is the market share of Capitol Air, which entered the New York to Chicago battle only three years ago and bas a 4.5 per cent stake, and of Midway Airlines, also a recent entrant, which now has 4.3 per cent of the New York traffic, 9.4 per cent of the Philadelphia route and 8.9 per cent

of the Washington traffic.
Since deregulation of the industry, the major U.S. carriers have learned to live with increased competition and with fare-cutting

People Express has just announced a move into the Newark to Miami and Newark to Detroit markets. While airline yields will cer-tainly be affected by further price competition, the major carriers will fight to defend their business. It may be that Wall Street is ex-

aggerating its own fears. Only the weakest need go to the wall.

Banks see progress in talks on Mexican debt

BY MARGARET HUGHES IN LONDON

MEXICO AND its 13-member bank advisory committee made "substaotial" progress in negotiations over the weekend towards a multi-year rescheduling of the country's public sector debt, Mr William R. Rhodes, vice-chairman of Citibank and cochairman of the committee, said

yesterday.

Detailed proposals of the terms and conditions of the rescheduling are expected to be circulated to Mexico's 500 creditor banks early next month, but no date has yet been set for reconvening the talks between Mexico and the creditor

A multi-year rescheduling of Mexico's debt would represent a major breakthrough towards achieving a solution to the repayment problems of Latin American countries, which collectively owe \$350bn to their foreign creditors.

Mexico had earlier proposed a 15-year rescheduling of all public sec-tor debt falling due between the end of this year and 1990. This would

Mexico also wanted to include within the package some of the debt

which has already been rescheduled under earlier agreements with the creditor banks as well as the

In addition, Mexico has asked for a commitment from the banks to lend new funds if there is a significant increase in interest rates.

Mexico bas been promised better scheduling terms by Mr Jacques de Larosiere, managing director of the International Monetary Fund, in return for its progress in adjusting its economy, a promise which was supported by Western governments at this year's London sum-

The commercial banks, however, have been reluctant to agree a rescheduling which would extend beyond the term of office of President Miguel de la Madrid, which expires

amount to \$48bn, more than half in 1988 or beyond the present IMF Mexico's total foreign debt of \$87bn. programme which ends next year. lexico has said it sees no need for a further IMF programme but the Fund has been reluctant to as sume responsibility for monitoring a country's economic performance there it has no programme is

> its creditor banks have reconciled this problem. One possibility is that Mexico would submit reports on its economic performance for authenti cation by the IMF. This would not involve direct monitoring by the

structuring, Mexico is seeking a reduction in interest rates below the present margins which average 1% so wants banks to drop their option to base their interest rates on the more expensive U.S. prime rate, more expensive U.S. prime rand, and to drop their normal rescheduling fee, which could be as much as \$480m.

Ford to open third U.S. outlet to sell luxury European imports

FORD is to build a third car fran- and we intend there should be con-

ago that it would begin sales this utumn of a version of the Germanbuilt Slerra XR4i to be sold as a 'Mekur" in the U.S.

BY KENNETH GOODING, MOTOR INDUSTRY CORRESPONDENT, IN DETROIT

chise in the U.S. which will sell tinuity. We build cars of real merit in Europe, with distinctive differences from our American products. can bring them into the U.S. as a new line, be said.

er end of the luxury price range, and that limits volume," Mr Peters-Mr Donald Petersen, Ford's president, made clear yesterday that this was the first step to establish a new Mekur tranchise in the U.S. separate from the Ford and the Lincoin-

"The introduction of the Mekur about what might follow the Sierra, the antumn. Sales might reach was not something we did lightly, but the logical choice would be a 60,000 to 100,000 a year.

version of the Granada replac due early next year in Europe and by all accounts somewhat similar in style to the Sierra. It is also known With relatively low investment, we that Ford has been preparing the can bring them into the U.S. as a new Granada - which will be built only in West Germany - to pass technical tests in the U.S.

The American Sierra-Mekur will be powered by a turbocharged 2.3 litre engine, made in Brazil, rather than a European unit.

new franchise have been told the retail price will be about \$15,000 to Mr Petersen would not be drawn \$17,000 when the car goes on sale in

Jaguar demand creates jobs

BY DOMINIC LAWSON IN LONDON

U.S. and West Germany. West German demand for the

cars so tar this year is 65 per cent up on the same period in 1883. A to-tal of 1,100 Jaguars has been sold there io the first seven months of the year, compared with 1,220 in the In the U.S. more than 10,200 cars

have been sold so far this year, an increase of 16 per cent over the comparable period of 1983. Jaguar has not cut its U.S. selling price in an attempt to exploit the weakness in the sterling-dollar exchange rate.

JAGUAR, the British luxury car creasing production, we can take manufacturer, is to create 530 jobs in an effort to meet a rapid increase advantage of the overwhelming in the U.S. and Germanutain our policies of offering se-

£55m (\$71.9m) in 1983, and a further £43m in the first six months of this year. Shares in the former part of state-owned British Leyland, which were offered to private investors earlier this month, were eight times oversubscribed. The share price ended the week on the London Stock Exchange at 171p, above the 165p at which they were sold by the

Last year the company sold 28,000 cars, but it expects to sell about 32,000 in 1984.

so the company feels confident that it is creating the new jobs on a sound long-term basis.

The company pointed out yesterday that it did not believe in taking on new staff unless it could give Mr John Egan, Jaguar's chief ex-ecutive, said yesterday that "by in-least two to three years. Mr Egan

cure long-term employment an continuing to increase our produc-

In 1980 Jaguar turned out 1.4 cars a worker a year. This year it has been producing 3.5 cars a worker a year, and next year it projects a fur-ther increase to 3.7, even after the increase in the workforce.

Recruitment will start immediately for the jobs, of which 320 are to be at the Browns Lane assembly plant in Coventry, the Midlands. Another 160 men are to be taken on at the Radford engine and axle plant, also in Coventry. The remaining 50 are to be located at the Castle Bromwich body assembly and paint plant in Birmingham, also in the

Zanussi pact sought

Continued from Page I alternatives would aim at the same

objectives as before.

We have asked for a certain sac-

rifice and we have to stick to that, but there are possibilities to arrange the sacrifice in different

ways.

The group of 80 Italian banks which hold the bulk of Zanussi's total gross debt of L1.046bn (\$582m) have agreed to reschedule their loans over the next seven years and to reduce interest rates, a sacrifice of about L200bn.

Mr Ribohn agreed that the deal was still uncertain. If we don't get agreement 1 don't know what will happen," he said.
Amid the continuing uncertainty

the weekend to shore up waning business confidence in Zanussi by signing a conditional agreement

with the Zanussi family and the Italian consortium led by Medio-banca for its acquisition of a 49 per cent stake in Zanussi.
The agreement is still conditional on other parties, chiefly the foreign

banks and the regional authorities agreeing to the final terms of the Under the deal signed at the

weekend Electrolux would pay about SKr 150m (\$18m) for the existing equity - recently written down - to the Zanussi family and the other major shareholder, Voest Alpine of Austria. Some L100bn would be injected

in new equity - 47 per cent by Elec-trolux and the remainder by the Mediobanca consortium which includes Fiat and other Italian inves-

				3300	BITM	35.55	100	2. 3.34	*****	* *	0000	W. 2. A. A.			
	S	7C 25	°F 77 82	Daisvanek Faro	ì	"C	of E	Malaga Malaga		°C	°F SS	Salebory Secol	Ę	°C 17 28	1
	1	20 19 20	82 66 84	Florence Frankfart Fanchel	S	23	54 73 75	Maria Maria Maria	E	75 32 25	84 86 77	Simples Stackholm Strasbourg	F	. 31 17 25	6
i.	5	34 25	95 93 77	General General General	Š	21 25 21	70 84 78	Moscow Marick Marshi	F	17 19 26	54 66 79	Sydney Tages Tageser	Š	33	9
•	\$	23 72	84 77 68	Helsinto H Kany	É	13 78 18	55 82 64	Maples Repr Dalls Navy York	S R C	20 25 25	82 77 84	Talena Tel Any Tesenia		29 27	8
4	F S	20 21 20	70 66	harstruck kwernesa banabul	į	19 22	66. 72	Mice Opone	5	22	72	Turkyo Turkyta	C	3 \$ 15	8
1	F S F	23 21 28	73 70 68	Jertey Jerberg (as Paless	F 5	19 18 75	66 77	(laio Paris Pragae	S	17 22 26	12	Texis Valencia Vesice	5 F F	23 23 25	7.

Unitary tax move resisted in California Continued from Page 1

not to benefit one group of compa-nies over another, she said, but lo make California more attractive to threat of retaliation in foreign coun-

Foreign companies and governments, especially in Britain and Japan, bave actively campaigned for a change in the California tax system. Mr George Deukmejian, the state governor, announced in May proposals to amend the tax code which would significantly modify unitary tax. The Governor forgot his friends classer to home homewer. his friends closer to home, however, claim the Silicon Valley companies.

where foreign companies are treated better by local governments than home-grown firms," Dr Moore said. The Bills would "compromise our

"Unitary tax will become another negative factor against California if the proposed legislation passes," Mr Michael Mayback, Intel spokes man, said. "I am not suggesting that intel or any of the larger companies will move out of the state, but small companies - tomorrow's intels will have to look closely at whether it is worth staying."

Company representatives admit month of two Bills dealing with un-itary tax, after six years of lobbying efforts bad failed to achieve as

The intent of the legislation was

Foreign companies and govern-

"I know of no other instance ability to compete, to grow and to employ more Californians."

be negotiations.

ted to being "stunned" by the swift should be re-awarded in the second passage by the State Senate this thought likely to try again.

Belgium and UK seek air fares cut

By Ivo Dawnay in Brussels TALKS between British and Bel gian transport ministry officials are expected to begin this week, aime

at introducing cheap air fares be-tween the two countries.

The negotiations follow the agreement signed in June between Britain and the Netherlands, which ushered in a £49 (\$64) return fare on London-Amsterdam flights, with extensive reciprocal liberalisation of rights for the two countries' air

similar package, not least to coun-ter the effects of cheap price fares from the UK to its near neighbour. Herr Karl-Heinz Neumeister, sec retary-general of the Association of n Airlines disclosed Britain's interest in negotiating a cheap fares deal. He said the UK had asked for a meeting with Belgian transport officials by the end of the

Herr Neumeister, whose 20-airline association supports the drive for cheap fares, said he believed any agreement reached could be implemented well before next Janu-

ary.
"It took only a week for the Brit-isb Government and the Netherlands to implement the 649 return fare, and f do not expect it will take the Belgian Government any longer

to agree, be said.

UK Transport Ministry officials could not formally confirm that a request for talks had been made However, it is understood that Mr Nicholas Ridley, UK Transport Minister, has indicated a wish to press ahead with fare and other reforms after the agreement with the

Michael Donne, Aerospace Cor-respondent in London, writes: Conorde is now paying its way in the British Airways' fleet "and is contributing to the airline's turn-round with steady profits," accord-ing to Captain Brian Walpole, BA's General Manager, Concorde. No fig-ure is given, but it is believed to be several million pounds a year. BA bas six supersonic Concordes in service, and a seventh is being

brought up to full flying standard to join the fleet next year.

Aerospace survey, Section III

Thais plan refinery expansion

By Peter Bruce in London

THE THAI Government has launched an international advertising campaign in an effort to encourage new bids to double capacity at the Thai Oil Refining Company (Torc) refinery near Bangkok. The bids could reach \$500m.

Torc, which is 49 per cent-owned

by the Government's Petroleum Au-thority, first awarded in April 1982 a \$452m contract to expand capacity at the refinery from 65,000 to 110,000 barrels a day to a consor-tium led by Britain's Davy McKee, and two French pariners, Proco-france and Technip but withdrew it last month after months of arguing

over financing.
The contract was the biggest ever awarded to a British company in Thailand. But while Torc's advertisements insist that "the contractor will also be required to arrange the finance" it is highly unlikely that the Thais, in return, will be pre-pared to guarantee much, if any, of the loan capital raised.

Worried about the state of world

oil markets, and hence the project's viability, Barclays International and Societé Générale of France, the Davy consortium's original bankers, began to apply pressure last year for some form of guarantee from the Thais. This culminated in the collapse of talks between the Thais and the bankers and contractors in London last Novem-

ber. Mr Ob Vasuratna, the Thai Indusnew tenders but the British and French governments stepped in with offers of grants, soft loans and buyer credits. Barclays Internationseat after the contractors brought Morgan Grenfell, London merchant bankers, and Banque Indosuez, into

Tore is now looking for responses to the bidding by September 5, and project managers, U.S.-owned Foster Wheeler, who are running the project through their UK subsidiary, believe they will be ready to put together a shortlist of approved bidders in about two months. The contract, all being well

Having already spent more than three years with the project, Davy, Procefrance and Technip are THE LEX COLUMN

The clock stops on deregulation

Bankers who fled quietly in the night from U.S. frontier towns a century ago helped to establish a susplcion of banking which has been perceptible in the U.S. almost ever since it was heavily buttressed by the bank collapses of the Depression era and the Glass-Steagall legislation of 1933 has been its lasting monument. For much of the last decade, this suspicion has been overcome by the successful advo-cates of banking deregulation; but proponents of continued reform low appear to be faced with a

steadily less receptive audience.
Within a few weeks of the rescue of Continental Illinois, the U.S. financial system is confronted with an impending liquidity crisis in another institution with assets more or less the same size, as it happens, as those of the crippled Chicago bank. The problems of Financial Corporation of America (FCA) are rather different from those of Continental Illinois and could still prove less than disastrous with a bit of help from conditions in the U.S. money market. But there is no doubting the widespread alarm at FCA's present predicament, underlining again the urgency of the de-bate about regulation across the whole U.S. financial sector.

Rates squeeze

shared by the bulk of its compet-tors in the U.S. savings and ioan in-dustry. The larger S & L companies including most of those which are publicly quoted - bad a comfortable first quarter and have only been squeezed by the rise in short-term rates since May. Even now, their situation is not as bad as it was in

prompted second thoughts about re-cent deregulatory measures intro-

et its face against the most notable of these - namely, clearance for S&L companies to switch to adjust-able-rate mortgages in place of the fixed-rate assets, which proved so

All that said, FCA is one of the most celebrated products of nearly 10 years of deregulation. For nearly half a century, Regulation Q imposed interest-rate ceilings imposed by the Glass-Steagall Acts. In the wake of its removal and because of competitive rates and aggressive marketing of "jumbo" deposits and wholesale funds – neither is available to it under the ancien regime - FCA has made itself: the largest

S& L holding company in the U.S. within the space of a few years.

It has also given a bad press and a savage mauling from the SEC, made itself into the biggest headache currently affilicting the U.S. scale of Continental Illinois, the argument for significant changes in the regulatory environment will be

culated gamble on its mismatching of long-term fixed-rate assets and short-term funding has been well aired; but the gravity of its immediate liquidity problem may still have trained management of cash as-been underestimated. Having sets, are surely irreversible, as in turned over \$10.9bn of short-term li-the U.S. airline industry, where abilities just last month, it could they have brought about buge ben-now be faced with refunding as effits. To maintain the safety record much as \$500m of its liabilities ev- of the financial sector, however, it ery business day - not to mention a might now be thought necessary at

duced specifically for its own industry. Indeed, quite the opposite, FCA Wall Street is acutely nervous of a and the company's access to assis-tance from the Federal Home Loan Bank – which in theory could run to debilitating three years ago - and it is this decision as much as any other which bas landed it in its any other which which its any other which its any other which which was also any other which which was also any other which which was also any other which was also any other which which which was also any other which which was also any other which was also any other which which was also any other which which was a

Likely trigger

A much beavier involvement for the Home Loan Bank could presumably be made conditional upon sweeping changes in FCA's management and operations. This now appears the most likely trigger for any near-term moves on the regula-tory front. It is conspicuous, for ex-ample, that some features of FCA's rapid expansion — such as its pur-chase and recent sale of shares in American Express - have only been possible because it is a state-chart-ered S & L rather than a Federalchartered company like most of its money markets. And if this should competitors. Again, tighter restricturn out to be the first symptom of tions on the Federal insurance another financial debacle on the cover available on S&L deposits may have curtailed FCA's access to pension funds and this could be an-other area for scrutiny.

pressing.

The implication of such specific
The awesome scale of FCA's caladjustments as these for the wider predict. The fundamental changes wrought by deregulation, including a whole new market devoted to cenheavy burden of fresh property
loans to which it was committed at
the end of June. Unlike Continental
Hlinois, FCA is not solely reliant on



66An excellent site, clean air environment, good com-munications and the best possible financial package: finding all this in one location meant it had to be Clwyd 99 Derek Cross, General Manager, Optical Fibres.

Optical Fibres make light of communication in more ways than one. As a company they are dedicated to the volume production of high quality, low loss optical fibres for all communications applications.

munication network. Being only 2 miles from the start of the M56 and the national motorway network, means that they can reach around 60% of the UK population in just 4 lorry hours. Other factors that convin-

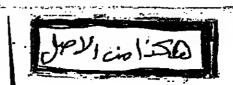
ced Optical Fibres and many other companies that Clwyd was right for them include:-Financial aid equal to the best in mainland G.B. *A reliable, trainable and co-operative workforce. *Modern sites and prem-

business decision

County Counci Mold, Clwyd, Telex: 61454	il, Shire Hall, CH7 6NB.
Please send me f on how Clwyd car business grow.	urther details n help my
NAME	
POSITION	
COMPANY	

business development. Contact Wayne Morgan, County Industrial Officer, on 0352-2121. Or send the

coupon to him at Clwyd





cable and

equipment

111 E2

 $\mathcal{A}_{i,j} = \{ i, j \in \mathcal{A}_{i,j} \mid i \in \mathcal{A}_{i,j} \}$

72.7

Port Manage

11 11 12

 (a_{k+1}, a_{k+1})

4.5

20.00

1.29

100 425 200

SECTION II - COMPANIES AND MARKETS

FINANCIAL TIMES

Tuesday August 28 1984



HONG KONG BORROWING

First local floater soon for Mass Transit Railway

BY DAVID DODWELL IN HONG KONG

WITHIN the coming month, Hong which has injected equity amounting to about HK\$5bn, is not withporation (MTRC) will unveil details of a HK\$500m (\$63.8m) floating-rate note being arranged by Morgan Guaranty and Manufacturers Hanover. It will be yet another "first" for the territory's biggest borrower. "We bave pioneered new kinds of borrowing and have been aggres-sive borrowers," Mr Lau Wah Sum, the MTRC's outgoing finance director, said. "We are proud of this - not because we like owing people money, but because it means we've been able to borrow more cheaply." During the past year, the MTRC has mounted Hong Kong's first

Major MTRC loans concluded sin-de August 1983

Banque Paribes Indosuez Asia Midland/Crocker LTCB Tokal/Mitsui Bank of Nova Scotia Puli Bank First Canadian ' First Hat Bank of Boston Berelays Asia

Extended from original HK\$300 m loan

bond issue and the territory's first U.S. dollar denominated commercial rate note as part of a borrowing programme which has garnered commitments amounting to almost HK\$5bn. Gross borrowings for the nine-year-old corporation add up to HK\$15.5bn; and are likely to peak

ting to about HK\$5bn, is not without its detractors, however. Many feel it was rash to go ahead with its third railway line - the Island Line, due to be completed in the middle of next year - once the local proper-

ty market collapsed in 1982.
They have argued that a corporation with relatively fixed future income, and fixed overheads, will be unable to repay the debts incurred and will be forced to turn to the Government for fresh funding. It will be the Hong Kong taxpayer who will ultimately pick up the bill,

In 1983, the MTRC made a loss before extraordinary items of HK\$535m due entirely to interest and finance charges of HK\$788m pected to mount, peaking around 1988. on its borrowings. Losses are ex-

It has additionally been hit by ioreign exchange translation costs amounting to almost HK\$900m. Losses so far have eroded the Hong Kong Government's investment to about HK\$3bn. Yet the MTRC maintains the highest possible credit ratiog among international lenders, who no longer insist on government guarantees, and are now offering loans at between ? and ½ a percentage point above the London Interbank Offered Rate (Libor). This compares with margins of 2½ points when the corporation first turned to the international cap-One prominent banker in Hong

Kong explained: "If you look only at the current cash-flow, then obvious ly it can't pay its debts. But banks are looking to the future, and the fact that there will be no other means of transport in the territory that can overtake it. They also have the implicit understanding that the in 1996 at about HK\$22hn,
The corporation, wholly owned by the Hong Kong Government is standing behind it, and the Government by the Hong Kong Government is, after all, basically ungeared."

Changes in U.S. bond rules stir uncertainty

SHF Bank bond average

only one, from a Japanese borrow-

YET AGAIN the Eurodollar bond market has cause to mutter carkly about the U.S. Treasury. Its new regulations covering U.S. issuers' bonds sold overseas, published last Monday, only increased the uncer-

The regulations seem to say that whoever pays the interest outside the U.S. on a corporate bearer bond must have written proof that the recipient is not a U.S. person or else er, coming last week. it will have to levy a 20 per cent "back-up" withholding tax. That os aplenty, though. Even U.S. borwould be enough to stop investors buying the bonds.

Dealers are anxious that the Treasury sort it all out before re-cent deals for Texaco, Mellon Bank zeros, of course, do not have any inand Beatrice are closed. Otherwise they might have to be cancelled. The unkinder traders say that would not be a had thing in Beatrice's case, where some suffered

New issue managers will not risk bringing a fixed rate issue for a U.S. sell.

Friday's C\$50m issue for property company Trizec looked a little ag-gressive. The borrower has a U.S dollar with a 16 per cent coupon which is traded at 100%, so a 13 per cent yield looks low. But the domes tic Canadian bond market has rallied well this summer and yields there are lower than in the U.S. In the Eurodollar market, last fies the rules. As a result straight issues have virtually dried up with

week's issue from Secom is already

trading at 102%. In D-Mark, the Rhythm Watch bond with warrants has shot up to 104, while the Nitto Boseki convertible is just below rowers can issue these floaters because they are mainly sold to banks par. And in the Swiss franc market recent convertible private place-ments have all been fixed with lowand institutions who do not worry er-than-indicated coupons.

Low 98.056

The continental markets are takterest to pay tax on. ing heart from the slight weakening The Canadian dollar sector has of the dollar, and the more stable sprung to life again - with coupons New York bond market D-Mark a good point lower than they were bonds gained around % point over six weeks ago. The market is allosses, as the price slid to a 5 point most entirely dependent on retail the week - further eocouraged by discount. the lightness of the current new isthe week - further eocouraged by issues are generally slow to sue calendar. Swiss franc bonds pared to compromise on the amount to be rescheduled.

Mexico talks provide cause for optimism

PROGRESS TOWARD a multi-year rescheduling agreement between Mexico and its creditor banks over the weekend could represent a major hreakthrough towards achieving a long-term solution to the Latin American debt crisis. The Mexican package may set a precedent which could be followed by other countries such as Brazil and Chile, seeking to extend the term of their rescheduling beyond that of their existing international Monetary Fund (IMF) programme and for Venezuela which has resolutely rejected an

IMF programme. There appears already to have been some closing of the gap between Venezuela and its creditor banks, which resumed negotiations last week. Venezuela has apparent-ly been persuaded to abandon the principle of six annual payments. Venezuela has also become more flexible on the term of the rescheduling, while the banks seem pre-

Meanwhile, the sharp rise in cop- centred on Asia and the Far East per prices which took the London Metal Exchange price up to its highest level in May should take some of the pressure off Chile, which is attempting to renegotiate its economic targets with the IMF. than on its previous \$750m loan. Chile based its economic projec-Nalco, India's state-owned alu-

tions for this year on an average copper price of 75 cents a pound only to see prices slump. Copper represents more than half of its export earnings and about half of these go on servicing its debt, the burden of which has increased with the rise in interest rates.

If sustained, the rise in copper prices should ease the pressure on Chile and make accommodation with the IMF easier. Chile has already drawn SDR 400m (\$407.4m) of its SDR 500m IMF facility due this year but still has some \$380m outstanding on its \$780m commercial bank loan, which is dependent on an IMF programme remaining

On the lending front, interest has

Indonesia came to the market last week for its second major fund raising this year with a \$500m dualtranche credit in yen and Eurodol-lars on terms which are a little finer

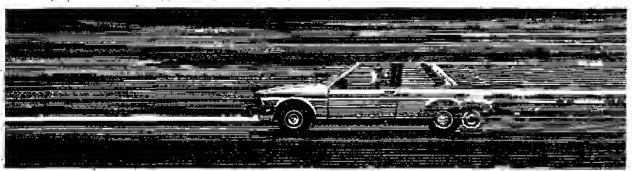
minium company, is trying to get better terms on its \$300m loan, particularly the tax-spared portion, On the sterling front, Co-operative Retail Services, the UK's largest co-operative society, has awarded the mandate for a £30m seven-year advance acceptance facility to BankAmerica Capital Mar-

kets Group and Co-operative Bank. Meanwhile, Britain has followed the lead of its European neighbours in renegotiating better terms for existing loans. Last week the Electricity Council became the first UK borrower to do so. Although the authorities state that there has been no deliberate change in policy, other nationalised industries may well follow.

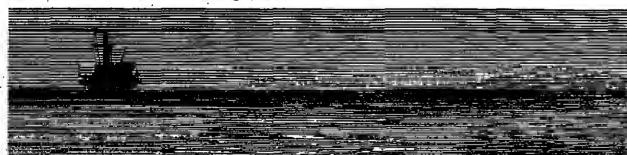
						NEW INTER	NATIO	NAL BOND ISSUES							
Borrowers	Amount	Metarity	Av. life years	Compan %	Price	Lead Manager	Ottor yield	Borrowers	Amount 10.	Maturity	Av. life years	Coupon 0/B	Price	Land Manager	Offer yiel
U.S. DOLLARS								SWISS FRANCS	- 50						
Optoc Dai-lehi Danka 31	30	1999	15	374	190	Yarqaichi jrtti.	3.750	Mitsubishi Pleatics ****	60	1989	~	21/4	109	SBC	2.25
Konishiraku Photo Ind. 51	30 58 50	1999	15	4	188	Mikin Secs. (Europe)	4.890	Cie. Française des Patroles ‡	80	1994	-	51/8	100	CS	5.87
Tehoka Electric I	50	1989	5	1234	188	Nomura intl., Salomon Bras.,		Konishiroku Photo Ind. **51	50	1989	-	21/a	100	28C	2.12
				-		Yasusia Tst. Eur.	12.75B	Mitsui OSK Lines **1	100	1989	_	6	190	SBC	6.00
Elec. de France I	602	1994	10	8	32.25	Morgen Governey, BNP,		Asabi Pan **§	20	1909	-	25/2	188	Bque. Morgan Grenfell en Suisse	
						Noncre lott.	12,429	Karimote Iron Works **	30	1989	-	a	100	CS .	
Monfic Inust, Bank I	150	1954	18	a	31.75	Morose Suarasty, Paribes,		Nageya Railroad ** 9	50	1989	-	43/2	100 100	UBS SBC	
						Dakwa Europe	12. £50	JFM	180	1954	-	•	•	SEC	5.75
EFCE 11	608	1989	15	1/1	100	CSFB, BNP	_	•							
trained 7:	300	1999	15	3/10	198	Deutsche Bank, CSFB, BMP.									
				,		Orion Royal, S& Warburg	-						_		
Korea Exchange BL 11	125	1999	15	3/8	100	Morgan Governoty, Bk. of Tokyo	nti								
Riggs National † (b) †	125 50	1996	15	1/4	180	Margan Stanley, Parities, Salome		ECUs			_				
Secon 5	79	1999	15	4	180	Names lett.	•	ECSE ‡	40	1989	5	103/4	100	Soc. Gen. de Boue., BBL.	
														Kredietbank	18.75
CANADIAN DOLLAR								ECSC 1	40	1994	10	111/4	100	As above	11,25
City of Winnipey I	58	1991	7	1274	9974	Wood Gendy	12,886								
Trizec Corp. Canada 1	60	1989	5	13	100	CIRC	13.000								
			<u> </u>												
D-MARKS															
Bantarankii Oy ‡	. 180	1921	7	8	100	Coamerzbenk	8,000	YEN							
ESCORO 1	108	1992	2	814	100	Communicationsk	8,258	Thelland ‡	18km	1991	6.4	7.7	99.66	Miko Secs,	7.91
Rhythu Watch "	68	1369	5	5 .	190	Dresday Bank	•	Charbs, de France ***	10ba	1894	9	7.2	100	Yemnichi Secs.	8.05
Minta Baseki §	. 59	1989	5.	344	188	Dustsche Bank	•	ICIC)	Steps	1891	6,4	7.5	108	Daiwa Secs.	8.05
* Not yet prized	final terms.	"" Place	-	. S Com		† Playting rate rate: cooper	is several t	our 6-mark tiber (b) S	weed over 3-a	muth Librar	9	With warra	nts.	Note: Yields are calculated on A	MO basis



TRW is a widely diversified company on the leading edge of electronics and space technology. Our Pioneer 10 spacecraft (pictured) was the first man-made object to leave the solar system. And TRW electronic components have hundreds of down-to-earth applications - from computer tape drives to television sets.



TRW began as an automotive parts manufacturer over 80 years ago. Today, almost every car and truck on the road contains TRW parts. TRW factories around the globe produce a wide range of automotive parts - from bearings and valves to complete rack and pinion steering systems.



TRW industrial and energy products have earned a reputation for reliable performance. TRW equipment, backed up by an extensive field service and repair network, helps pump oil and gas around the world. TRW components keep the world's aircraft flying, and TRW bearings, tools, end fasteners help raise productivity levels worldwide.



These Bonds having been sold outside the Netherlands Anillies and Australia, this announcement appears as a matter of record only

August 1984



NEWSCORP NETHERLANDS ANTILLES N.V.

Willemstad, Curação, Netherlands Antilles

Swiss Francs 150 000 000 6%% Bonds 1984-1994

with the guerentee of

THE NEWS CORPORATION LIMITED (Incorporated with limited liability in the State of South Australia)

SODITIC S.A.

BANQUE SCANDINAVE EN SUISSE

THE ROYAL BANK OF CANADA

PANKERS TRUST AG

FIRST CHICAGO S.A.

MORGAN STANLEY S.A.

Compagnia de Banque et d'Investissements, CBi d'investissements, CBI J. Henry Schroder Bank AG

BANK HEUSSER & CIE AG SANQUE GUTZWILLER, KURZ. BUNGENER S.A. CHASE MANHATTAN BANK (SUISSE) MANUFACTURERB HANOVER (SUISSE) S.A.

NIPPON KANGYO KAKUMARU (SUISSE) S.A.

Bank Oppenheim Pierson (Schweiz) AG Goldman Bachs Finanz AG Overlend Trust Banca Sumitomo Trust Finance (Switzerland) Limited

Bence del Sempione
Benk Leumi le-Israël (Schweiz)
Banque Keyser Ullmann S.A.
Banque Merticipations at de Piscame
Banque Nationala de Paria (Suisse) SA
BHF Bank (Schweiz) AG
Crédit des Bergues
Dai-Ichi Kangyo Bank (Schweiz) AG
Grindlays Bank Pic
Hottinger & Cie
Inter Maritime Bank
Mitsui Finanz (Schweiz) AG

inter mantime Bank Mitsui Finanz (Schwelz) AG Phibrobank AG Société Générale Alsacienne de Benque – Groupe Société Générale –

nqua Kleinwort Benson B.A. Banque Pascha S.A. Barclays Benk (Suisse) S.A. CISC Finanz AG Greet Pacific Capital S.A. Indelsfinanz Midland Bank Ink of Jepen ISchweiz) AG New Jepan Securities (Schwelz) AG

Armand von Ernat & Cia AG Banco di Roma per la Svizzera Banque Générale du Luxembourg (Suisse) S.A. que Indosuez. Succursales de Sui

NOROFINANZ-BANK ZÜRICH

KREDIETBANK (SUISSE) S.A.

Clariden Bank

et de Lorraine Fuji Benk (Schweiz) AG Gewerbebank Baden Hypothekar- und Handalsbank Winterthur Maerki, Baumann & Co. AG Sparkasse Schwyz

Financial Advisor to Newscorp Netherlands Antilles N.V. and to The News Corporation Limited: ALLEN & CO. INCORPORATED,

FOMC report dulls prospects of early easing moves

the July leading economic

Against this background bond

Several analysts noted that

week. The Treasury 12.5 per cent long bond closed on Friday

the announcement of the pro-posed "targeted" issues for

new issues are likely to be

bond callable after five years— a move which is perceived as

reducing supply at the longer end of the maturity spectrum

year issue is currently yielding about 12.59 per cent.

Short-term interest rates remained firm. The Fed Fund rate, despite falls on Wednesday, Thursday and Friday, remained over 11.5 per cent throughout the week.

In the corporate markets the

Nearly \$1.1bn of issues were launched bringing the total so far in August to \$6.6bn. New

ssue rates were generally un-

changed but seasoned medium-term issues increased in price

by a point and long-term bonds posted increases of around

year extendable notes at par. The fact that many of the

Among

the U.S. credit and money mar-kets hangs in the balance—as the July leading economic do the economic, monetary, indicators due out tomorrow. and political debates which so Against this background bond markedly influence market prices were barely changed last

Last week, with the recent cent long bond closed on Friday rally apparently rapidly running out of steam, bond prices bounced around in summer-bounced around aroun thin trading and closed just marginally lower following the release late on Friday of the July Federal Open Market Committee (FOMC) meeting

foreign buyers has already caused an increase in the yield curve in the three- to 10-year maturity range in which these committee (FOMC) meeting report.
In fact the FOMC report showed nothing terribly unexpected. The FOMC, despite the lone objections of Mr Preston Martin, the FED vice chairman, agreed to bold the line with a basically unchanged "even feel" monetary stance—perlaunched.
This abift has probably been amplified by the Treasury plan for a trial issue of a 20-year keel monetary stance—per haps still displaying a alight bias towards firming.

The target ranges for the three major money supply measures, M1, M2 and M3 were and increasing it among the intermediates. The current 20-

U.S. INTEREST RATES (%)

Week to Week to Aug 34 Aug 17
Fed funds wkly ov ... 11.71 11.63
Three-month Coo 11.45 11.45
Three-month T-bills ... 10.48 10.32
30-yr ing bnd (Aug 18) 12.46 12.41
AAA utility (now) ... 13.50 13.50
AA industriol 13.38 13.38
Source: Solomon Bros. (setimates).
Maney supply: In the week ended August 13 M1 leil by \$1.2bn to ...
\$5546,1bn.

marginally lowered for the June to September period but most market participants read little into this, noting that the unexpected \$1.2bn decline in M1 last week leaves the basic money supply measure below Among

money supply measure below the mid-point of the target range.

Likewise, the stight upward adjustment of the Federal Funds inter-meeting monitoring First Atlanta sold \$100m of 10-year notes to yleld 12.815 per cent, Funds inter-meeting monitoring First Atlanta sold \$100m of 12.063 per cent floating rate expected—indeed, given the recent performance of the funds rate, some observers had expected a larger upward expected a larger upward coverage and First Interstate sold \$150m of 13 per cent two-year extendable notes at par.

.Thus the report contained few surprises but nevertheless appeared to dull the prospects new corporate issues last week were 10-year notes represents for any early easing move—as some Wall Street economists a significant further shift by corporate treasurers along the had begun to tentatively suggest was on the cards.

There is a general consensus that the pace of economic expansion in the U.S. is now

AMC to increase Renault business

BY KENNETH GOODING IN DETROIT

\$1.7bn investment programme, and, as new products emerged and sales built up, Renault would supply more components -engines and transmissions in particular.

For example, a 2.2 litre Renault diesel will soon be introduced to the new AMC Jeep in the U.S., the first time a diesel engine has been offered

Saudi builder

calls in New

York adviser

MORGAN STANLEY, the New

York investment bank has been called in as financial adviser to

Ali and Fahd Shobokshi, the troubled Saudi construction group, and is working on a general rescheduling of the Jeddah-based company's financial obligations.

cial obligations.

Bankers in Bahrain say there will be several different arrangements with groups of

some 80 lending banks to meet Shobokshi's immediate work-

ing capital needs and restruc-ture its medium- and long-term debt which is estimated at SR 1.2bn (\$400m).

Shobokshi, one of Saudi Arabia's biggest contracting companies after Bin Ladin, has diversified interests in trading

diversified interests in trading and property development, and has bad cash flow problems for several months as a result of delays on payments on contract payments and insufficiently liquid investments,

In May, Al Bahrain Arab African Bank (ALBAAB) arranged a \$46m rescheduling package with a syndicate of 10 other banks for the outstanding portion of a \$100m medium.

a diesel engine has been unered in a small jeep.
Renault owns 46 per cent of AMC and the U.S. group is basing its new cars on Renault designs, while using its own expertise to revamp the Jeep

AMERICAN MOTORS, number Mr Tippett, who was speaking built for Renault by Matra in four in the U.S. motor league, after delivering the keynote France, but no decision bad Mr Paul Tippett, AMC chairman, said yesterday his comtion of new lighter-weight U.S. if it was introduced.

pany was two years into s models.

Next year AMC's U.S. sales

> should be about 450,000. Sales of built-up car imports from Renault are expected to

> fall, however, from around 33,000 to below 25,000 partly because the American version of the R5 was dropped from the range last year.

AMC would like to import the new compact, fibreglass-bodied

BY ALAN FRIEDMAN IN MILAN

even larger as a result of an

BY WONG SULONG IN KUALA LUMPUR

A DELIBERATE policy of slow-ing down loanse has acted as a brake to the profit growth of public bank, Malaysia's third largest hank. Pre-tax for the first half of 1984 fel marginally to 36m ringgit (\$15.6m), although after-tax profit was still 7.7 per cent higher at 20.2m ringest.

In the past five years, Public

ringgit

agreement yesterday under reconstituted immediately a which the Berlusconi group will rake 50 per cent of "Rete Quattro," the loss making net-including its station, broadcast

A DELIBERATE policy of slow- ceeding 30 per cent annually.

Next year, AMC's U.S. sales When over 35,000 cars and will be boosted by the introduction of a pick-up version of the canada are added, plus more than 40,000 Jeep exports, total worldwide vehicle sales in 1984 sales did not reach 50,000—and that would be entirely incre-meotal because AMC is not in the pick-up market at the moment.

AMC has also revised upwards sales forecasts for a convertible version of the Alliance (based on the R9) to Mr Tippett made it clear Mr Tippett said about 16,000 and would like to import the would be sold next year against new compact, fibreglass-bodied previous estimates of only half van called the Espace being that number.

be put into liquidation and reconstituted immediately as

including its station, broadcast-

However, for the first half, although deposits rose strongly

by 43 per cent to 4,149m

ringgit, loans growth moderated

norm of 75 per cent.

AMC broke a succession of remain "modestly profitable"
14 quarterly losses with a \$7.4m

The programme will culminat Brampton, Ontario, in Canada, coming on stream in mid-1987. The Canadian plant will produce a car based on the successor to the R25, the executive model Renault re-cently launched in Europe. (AMC still has no plans to import the R25.)

By 1988 AMC models will cover 50 per cent of the car market against 25 per cent today, and it hopes its market share will rise from around 1½ per cent to between 4 and 5 per cent — giving U.S. sales of 500,000 cars.

Italian publisher in TV disposal The Mondadori group, which

THE ITALIAN television grammes to Sig Berlusconi's The Mondadori group, which empire of Sig Silvio Bertusconi, the Milanese entrepreneur whose brash commercial stations have been challeoging mixture of flashy variety and station, last year made a Lebin mixture of flashy variety and station, last year made a Lebin mixture of flashy variety and station, last year made a Lebin mixture of flashy variety and station, last year made a Lebin mixture of flashy variety and station, last year made a Lebin mixture of flashy variety and station, last year made a Lebin mixture of flashy variety and station, last year made a Lebin mixture of flashy variety and station, last year made a Lebin mixture of flashy variety and station, last year made a Lebin mixture of flashy variety and station, last year made a Lebin mixture of flashy variety and mixtu After the deal is complete, Mondadori will retain a 50 per-cent stake and the managing director of Rete Quattro will be Sig Berlusconi's brother Sig PJalo Berlusconi. Mondadori work owned by the Mondadori ing equipment and other publishing group.

Mondadori, Italy's biggest around L50bn. Rete Quattro publishing group, said it had agreed to sell ail of its prois the most prestigious publish-ing bouse in Italy and controls close to half of the country's book market.

Loan policy slows growth French retailer in profits at Public Bank in U.S. deal

CASINO, a leading French retail and food group, says its U.S. subsidiary Casino USA will bid for control of Smart and Final Iris Corporation, which was formerly known as Thrifti-mart. Casino USA will acquire all outstanding SFI shares that it does not already own. The takeover is subject to

to 16 per centro 2,371m ringgit.
The bank's loan to deposit ratio is now less than 60 per cent, compared to the banking French Government authorisa-tion and financing arrange-ments. Company officials were not available for comment. Bank has propelled itself. The bank had alowed down through aggressive lending lending to the property market into one of Malaysia's leading in line with advice of the banks with growths rates ex- Malaysian Central Bank.

CIT-Alcatel raises stake in U.S. group

CIT-ALCATEL, the leading half profits of \$1.7m this year.
French telecommunications This was almost double the equipment manufacturer, is to comparable six month result. In reinforce its bridgehead on the 1983 the U.S. company had U.S. market by taking more profits of \$2m after suffering shares in the Reno based Lynch heavy losses in the preceding telecommunications concern years.
from 25 per cent to 42 per cent. In an equally significant

The French company, controlled by the nationalised CGE are factory automation subscience and to buy 550,000 shares in The new company called Compagnic Generale de Productique (CGP).

Lynch for \$11m.

The transaction, which must be cleared by the French Government, is the latest move in CIT-Alcatel's efforts to penetrate the U.S. telecommunications market in the wake of the descentions of the America deregulation of the American telephone market and the break-up of the American Tele-phone and Telegraph (AT&T)

phone and Telegraph (AT&T) monopoly.

CIT-Alcatel acquired as initial 25 per cent stake in Lynch in 1981. The U.S. company has since assisted the French gdoup to convert its equipment, including its E-10 digital switch system, to U.S. standards. CIT-Alcatel now hopes to increase substantially its U.S. presence with the target of reach in annual U.S. sales of FFr 1bn by 1987.

Lynch, a manufacturer of telecommunications transmission equipment, reported first

activities of a number of CGP). The new company regroups the factory automation and systems activities of a number of CGE subsidiaries including Alsthom-Atlantique, CGEE-Alsthom, and CIT-Alcatel, among the main cores.

The new company appears to reflect an attempt by the French group to follow in the footsteps of other major international engineering and electronics groups which have been building up a major presence in factory automation and robotics.

EKKZIN

Merrill Lynch HQ to be centralised in New York

under construction near the In separate transactions, World Trade Centre in down-town Manhattan. In separate transactions, Merrill is to sell its 1.8m sq ft headquarters in Liberty Plaza

town Manhattan.

In March 1982 Amex, one of Merrill Lynch's prime competitors in the financial services field, said it was moving to the same location.

Merrill Lynch will occupy two buildings, which will be owned by a joint venture with Olympia and York, the developer of the 8m sq ft complex. The move will consolidate Merrill's 11 beadquarters and administrative facilities throughout Manhattan, and will put a cap on its long-term occupancy costs.

headquarters in Liberty Plaza and its leases in the building for undisclosed sums to Olympia and York.

"We estimate that our occupancy costs will be at least 25 per cent less with our new strategy than if we continued our current approach," said Mr Edmond N. Moriarty, Merrill executive vice-president.

The joint venture would provide the company with a share of the residual value of the indicting and the financial and operating benefits associated its long-term occupancy costs.

MERRILL LYNCH, the world's 3.9m sq ft of space. The first leading securities broker and a 34-storey building will be ready major force in financial serfor occupancy in mid-1986 and vices, plans to move its corthese second 44-storey building is porate beadquarters to the second 44-storey building is scheduled for completion in 1987.

ive facilities throughout Man-lattan, and will put a cap on ts long-term occupancy costs.

The two buildings will give with ownership, he said.

portion of s \$100m medium term loan, but this facility was not utilised because the bormaturity spectrum. Interest-ingly nearly all the issues were brought off the Rule 415 shelf. Paul Taylor rower did not meet certain

This advertisement compiles with the requirements of the Council of The Stock Exchange.



THE REPUBLIC OF ITALY

U.S. \$500.000.000

Floating Rate Notes due 1999.

The issue price of the Notes is 100 per cent, of their principal amount.

The following have agreed to subscribe or procure subscribers for the Notes:

BankAmerica Capital Markets Group

Banca Commerciale Italiana

IBJ International Limited

Credit Suisse First Boston Limited Merrill Lynch Capital Markets

The Notes constituting the above issue have been admitted to the Official List by the Council of The Stock Exchange, subject only to the Issue of the Notes. interest on the Notes will be payable semi-annually in arrears in each March and September commencing in

Particulars of the Notes are available in the statistical services of Extet Statistical Services Limited and may be obtained during usual business hours up to and including September 11th, 1984 from the Brokers to

Cazenove & Co., 12 Tokenhouse Yard, London, EC2R 7AN.

August 28th, 1984

This announcement appears as a matter of record only.



DAI-ICHI KANGYO BANK NEDERLAND N.V.

Dfls 50,000,000

81/2% bearer Notes 1984 due August 15, 1989

Amsterdam-Rotterdam Bank N.V.

Bank Mees & Hope NV

Dai-ichi Kangyo Bank Nederland N.V.

Algemene Bank Nederland N.V.

Swiss Bank Corporation International Limited

Pierson, Heldring & Pierson N.V.

August, 1984

		FT INTER	NATIONAL BOND SERVIC
LLAR Graph 114 9 Airways 14 9 Airways 12 9 Airways 12 9 Airways 12 9 Airways 12 9 Airways 13 9 Airways 14 9 A	100 125 100 16 100 100 100 125 107	Change on Bid Offer day week Yield 644, 954, -04, -04, 12.58 1084, 1094, +04, +04, 12.38 537, 344, -94, -21, 13.53 85, 957, -04, -14, 13.63 944, 947, +04, +04, 12.91 1024, 1034, +04, +04, 12.91 1024, 1034, +04, +05, 12.91 1034, 1034, +04, +05, 13.25 984, 987, +04, -05, 13.40 884, 887, +04, +05, 13.47 1904, 904, 0 -04, 14.04 1894, 904, 0 -04, 14.04	Sweden Kingdom 54, 94 125 1101 1014; 0 + D4, 5.5 Tsuemkratwerke 57, 94 700 1984; 984, 0 + D4, 5.6 Tobu Railway 4 92 WW 100 1954, 954, 0 0 + D4, 5.6 Tobu Railway 4 82 XW 100 1954, 954, 0 0 + D4, 5.7 Tobu Railway 4 82 XW 100 1954, 954, 0 0 + D4, 5.7 World Bank 64, 94
Kadm. 12 91 Kadm. 13 91 Kudm. 14 81 89 90 94	100 100 100 150 100 100 100	941, 941, 0 +01, 13, 28 951, 891, -01, +01, 13, 23 104, 105 -01, -01, 12, 90 951, 951, +01, +01, 12, 48 971, 98 -01, -01, 13, 04 981, 981, +01, +01, 13, 12 98 881, +01, +01, 12, 17	Average price changes On day -0% on week -0% Change on OTHER STRAIGHTS Issued Bid Offer day week Yiek 8, Indosusz 14 91 CS 76 198% 99% 0 +0% 14.18 Br. Col. Tel. 12% 99 CS 70 196% 97% 0 +0% 12.78 Canada, 0c, 12% 89 CS 90 137% 97% 0 +0% 12.78
Jepan 13% 91		102 102 0 -04 12.63	CNE 13 93 CS 90 . 1962 97 +04 +04

PLOATING RATE

© The Financial Times Ltd., 1984. Reproduction in whole or in part of any form not permitted without written consent. Octa supplied by OATASTREAM International.

EUROBOND TURNOVER

Last week..... 12,060 15,465.1 Previous week 10,168.7 21,152.3 Last week..... 2,112.5 1,261.5 Previous week 2,512.4 1,220.8

* No information available— previous day's price.

† Only one market maker supplied a price. STRAIGHT BONDS: The yield is the yield to redemption of the mid-price; the amount issued the find-price; the amount issued is in millions of currency units except for Yeu bonds where it is in billions. Change on week = Change over price a week earlier.

FLOATING RATE NOTES:
Denominated in dollars unless otherwise indicated. Coupon shown is minimum. C.dte=Date next conpon becomes effective.
Spread=Margin above six-mooth offered rate († three-month; § above mean rate) for U.S. dollars. C.cpn = The current coupon. C.yld = The current yield.

coupon. Cyld = The current yield.

CONVERTIBLE BONDS: Denominated in dollars unless otherwise indicated. Chg. day = Change on day. Cuv. date = First date for conversion into shares. Cuv. price = Nominal amount of bond per share expressed in currency of share at conversion rate fixed at issue. Prem = Percentage premium of the current effective price of acquiring shares via the bond over the most recent price of the shares.

The list shows the 200 latest international bonds for which an adequate secondary market exists. The prices over the past week were supplied by: Kredietbank NV; Credit Commercial de France; Credit Lyonnais; Commerchank AG; Westdeutsche Landesbank Ciromsentrale; Banque Generale du Luxembourg; Kredietbank NV; Algentene Denk Nacialista NV. Internationale Luxembourg;
Kredietbank Luxembourg;
Algemene Bank Noderland NV;
Pierson, Heldring and Pierson;
Credit Suisse/Swise Credit Bank;
Union Bank of Switzerland;
Akroyd and Smithers; Bank of
Tokyo International; Blytil,
Eastman, Pain, Webber International; Chase Manhattan;
Citicorp International Bank;

 C_{Green}

 $\mathcal{H}_{4(4),\{1\}}$

Mary

national; Chass Manhattan; Citicorp International Bank; Credit Commercial de France (Securities) London; Daiwa Europe NV; EBC; First Chicago; Coldman Sachs International Corporation; Hambros Bank; IBJ Corporation; Hambros Bank; IBJ
International; Kidder Peabody
International; Long Term Credit
Bank; Merrill Lynch; Morgan
Stanley International; Nomura
International; Orion Royal Bank;
Robert Fleming and Co.; Samuel
Moutagu and Co.; Scandinavian
Bank; Societe Generale Strauss
Turnbull; Sumitomo Finance
International; S. G. Warburg and
Co.; Swiss Bank Corporation
International; Wood Gundy.
Closing prices on August 24

Issued Bid Offer day week Yield

August 28 1984

a raises

The state of the s

FEQ to be

er to of many

in the late

10 m

1 6/15 Cont II was

i dinadir i dinadir 1 1 7" (14322

11 1. J. J. J. K. 71 W. 12

to the NEW Y

: h ::2

YETT CYCLE II.

تا العداد و العداد الماد العداد الماد العداد الماد العداد الماد الماد الماد الماد الماد الماد الماد الماد الماد

The second second . I...

New development chief for ICFC

held the same position.

Mr Richard Connell, 29, is the new business development the S. W. Farmer Group submanager of ICFC, a division of Investors in Industry, a source of private venture capital for smaller businesses. Mr Connell joined ICFC, part of 3i, in 1980, and the investors in the second and the industries.

ROPER AND CO. of Keighley, company products sold through the five subsidiaries of Data-fleet Markings.

Midland Speciality five five subsidiaries of Data-fleet Markings.

Checker/DTS in Northern Europe (Britain, France, Germany, Belgium, Holland), and through Datacheeker/DTS distributed and the large of the five subsidiaries of Data-fleet Markings.

Mr Paul Sm Mr Paul Sm Mr Paul Sm Mill.ER BUCKI.

Air Chief Marshal Sir Robert of Europe and Tion, part of the five subsidiaries of Data-fleet Markings.

Mr Brenton Halsey, chairman and chief executive of the James River Corporation, bas recently been appointed chairman of GB PAPERS. His appointment follows the death in June of the previous chairman, Mr G. W. Adam.

THE BALDWIN GROUP—the Winsford - based organisation which is the parent for a number of manufacturing operations, including Jiffy Packaging Company—has appointed Mr Philip Barber as financial director. Mr Barber, 34, has been elected to the board 18 months after joining the company as group accountant. Previously, he held positions with Touche Ross and Price Waterhouse.

Mr Staart Smithsen, fellow of the Institute of British Foundrymen, has been appointed marketing and sales director of E. A. He will be responsible for all includes Mander-Domolac, includes Mander-D

working first as an investment controller in Leicester, before transferring to ICFC's head office in London in 1983.

Mr B. P. Robinson joins the SWISS REINSURANCE COMPANY (UK) on September 1 as assistant general manager and will head the general business underwriting division. Mr B. K. Doody, deputy general manager, has retired.

Air Chief Marshal Sir Robert of Freer has joined the board of the general efforce equipment manufacturers. BRITISH MANUFACTURE AND RESEARCH COMPANY (UK) on September 1 as assistant general manager and will head the general business underwriting division. Mr B. K. Doody, deputy general manager, has retired.

who takes over responsibility for roadside advertising sales. Mr Gregson will join the board of an MILLS AND ALLEN INTERes NATIONAL on November 1. Mr Carter, who joined in 1976, is the executive of MAI's insurance broking division, and Mr and securities broking division.

Mr Tony Crabb, currently deputy head of BBC's current bear appointed broking division.

Mr Tony Crabb, currently and securities broking division.

Mr Tony Crabb, currently affairs programmes, television, affairs programmes, television, is, has been appointed controller, corporate news services. He jointed the BBC in 1957.

Mr Mattonal Mr Charles Keith Lewis, marketing sales. Mr Event Lewis, marketing sales. Mr Mellands

Mr Paul Guy, previously deputy chairman of Comet, has been appointed regional manager of the proviously deputy chairman of Comet, has been appointed group finance director of WOOLWORTH HOLDINGS, succeeding Mr Allen Foster, B and Q chief executive, now also becomes chairman of B and Q.

Mr Geoffrey Norman, Chairman of Comet, has been appointed regional manager of the proviously deputy chairman of Comet, has been appointed regional manager of the proviously deputy chairman of Comet, has been appointed group finance director of WOOLWORTH HOLDINGS, succeeding Mr Allen Foster, B and Q chief executive, now also becomes chairman of B and Q.

Mr Paul Smith has been appointed marketing director of MILLER BUCKLEY CONSTRUCthe Middle East.
Mr Faggetter, 38, joins Data-checker/DTS from Tc where he Group. Based at Winchester, he has worked for Miller Buckley for six years and was involved for part of this time in the group's design build company as a project manager.

BRITISH TRANSPORT
ADVERTISHED as appointed
Mr. Kenneth Coats, sales manager
Border Television, as sales direc-Mr Kenneth J. Ravenseroft has been appointed internal audit manager of OCZAN TRANS-PORT AND TRADING. He succeds Mr Brian Sturtivant who is retiring. Mr Ravenscroft joined Ocean in 1969. Since 1973 he has been financial controller of Ocean Titan division responsible for the group's non-liner shipping. Border Television, as sales director rail division, from September 3. He succeeds Mr Roy Arey who takes over responsibility for roadside advertising sales. Mr Keith Lewis, marketing services manager of "The Scotsman," has been appointed regional manager Midlands

Mr M. E. Berry, Mr D. A. Davies and Mr J. S. Simpson have been appointed directors of ROYAL INSURANCE (UK). Mr Davies has also been appointed secretary. This is an operating company within Royal Insurance.

BIRMID QUALCAST home and garden division has appointed
Mr John da Graft-Johnson as
managing director, Mr Barry
Abson as service director, and
Mr Bill Roe as part director of
Qualcast (Service and Parts).

Mr Don Bastow, who joined INGERSOLL LOCKS at the end of last year as general sales manager, has been appointed sales director, and joins the board.

This advertisement complies with the requirements of the Council of The Stock Exchange,

U.S. \$150,000,000

Chemical New York Corporation

Floating Rate Subordinated Notes Due 1996

The following have agreed to subscribe or procure subscribers for the above Notes:

Credit Suisse First Boston Limited

Chemical Bank International Limited

Commerzbank Aktiengesellschaft

Fuji International Finance Limited

Goldman Sachs International Corp.

Kleinwort, Benson Limited

Merrill Lynch International & Co.

Lehman Brothers International, Inc.

Mitsui Finance International Limited

Morgan Stanley International

Salomon Brothers International Limited

Orion Royal Bank Limited

Sanwa International Limited

Société Générale

Swiss Bank Corporation International Limited

The Taiyo Kobe Bank (Luxembourg) S.A.

Union Bank of Switzerland (Securities) Limited

Mitsubishi Trust & Banking Corporation (Europe) S.A.

Yamaichi International (Europe) Limited

The issue price of the Notes is 100 per cent. The Notes have been admitted to the Official List by the Council of The Stock Exchange, subject only to the issue of the temporary Global Note. Interest is payable quarterly in arrears on the 6th day of March, June, September and December, the first payment being made on 6th December, 1984. Full particulars of the Notes and the Issuer are available in the Extel Statistical Service and may be obtained during usual business bours up to and including 11th September, 1984 from the brokers to the issue:

Cazenove & Co., 12 Tokenhouse Yard, London EC2R 7AN

28th August, 1984

INTERNATIONAL APPOINTMENTS Texas Instruments makes three marketing changes

TEXAS INSTRUMENTS DATA
SYSTEMS DIVISION has created three new marketing appointments with responsibilities for TTS range of minicomputer products.

Mr Stephen Thomas has been appointed marketing manager, with responsibilities for professional computers, terminals and peripherals. His responsibilities will extend over all aspects of marketing for the profressional computer family including dealer support and technical support of the management at Resent promotions at RUST.

TION include Mr James E.

Mr John F. Phillips has joined Wisconsin, manufacturers of playboy Enterprises as corrected work-corporate senior vice president, chief financial and administrative officer. Mr Phillips bad previously served as senior vice president, chief financial and administrative officer. Mr Phillips has joined by LAYBOY ENTERPRISES as corrected work-corporate senior vice president, chief financial and administrative officer. Mr Phillips has joined by LAYBOY ENTERPRISES as corporate senior vice president, chief financial and administrative officer. Mr Phillips has joined by LAYBOY ENTERPRISES as corporate senior vice president, chief financial and administrative officer. Mr Phillips has joined Crocker of playboy expected as senior vice president, chief financial and administrative officer. Mr Phillips has joined Crocker of playboy action to president and chief financial and administrative officer. Mr Phillips has joined Crocker of playboy expected as senior vice president, chief financial and administrative officer. Mr Phillips has joined Crocker in particular to the playboy expected as senior vice president, chief financial and administrative officer. Mr Phillips has joined Crocker in particular to the profresh management in playboy of California. At Max officer for Max Factor & Co. of Hollywood, California, At Max officer for Max Factor & Co. of Hollywood, California, At Max officer for Max Factor & Co. of Mr John M. Stafford, president and chief financial and administrative officer. Mr Phillips has joined Crocker in particula

will extend over all aspects of marketing for the profressional computer family including port. He was previously a senior marketing consultant with Marketing Consultant information systems functions, and consultant information systems functions will associate in the corporate staff functions, but will also marketing consultant information systems functions will and consultant information systems functions. Mr Endstant, vice president and

pany planning manager for Ofrex.

Mr. Andrew Flatley has also been appointed a product manager of projects—bully and paper division. Mr. Habelshl joined Rust in 1964 as a design engineer, His responsibilities cover TTs range of business systems and associated peripherals. He was previously with Olivetti's south west salest and support division, GAD/CAM products.

Str. Malcolm G. Wilcox will retire as a director of CROCKER, NATIONAL, CORPORATION and Crocker Nationel Bank, its principal subsidisry, on Septimicipal subsidisry, on Septimicipal subsidisry, on Septimicipal following Midland Bank's acquisition of a majority of Crocker's common stock. He joined Mid-law of the materials of the materials and controls group and manager of projects—business systems and associated peripherals. He was previously with Olivetti's south west salest and support division, GAD/CAM products.

Str. Malcolm G. Wilcox will retire as a director of CROCKER, NATIONAL, CORPORATION and Crocker Nationel Bank, its principal subsidisry, on Septimicipal subsidisry, on Septimicipal subsidisry, on Septimon of a majority of Crocker's manager director of projects—industrial division. Mr. Simple, since joining Rust in 1974, has worked as staff following Midland Bank's acquisition of a majority of Crocker's business development manager based subsidisry. The proposed and substantial manager — northwest director in 1974 and retired from distance of the materials of the materials of the materials division. The fine of the materials and control product in 1975.

Mr. Martin has Carelle as defined as deputy managing director. The manager of projects—industrial division, Rank products and



THE KINGDOM OF DENMARK Floating Rate Notes Due 1992

U.S. \$100,000,000

In accordance with the provisions of the Notes and the Agent Bank Agreement between The Kingdom of Denmark and Citibank, N.A., dated February 12, 1982, notice is hereby given that the Rate of Interest has been fixed at 12% pa and that the interest payable on the relevant Interest Payment Date, February 28, 1985 against Council No. 6 will be 11, \$5522.50 1985, against Coupon No. 6 will be U.S. \$632.50.

August 28, 1984, London By: Citibank, N.A. (CSSI Dept.), Agent Bank CITIBANG CORRECTION NOTICE



CREDIT COMMERCIAL DE FRANCE U.S.\$250,000,000 Floating Rate Notes due 1996

For the six months 22nd August, 1984 to 22nd February, 1985 the Notes will carry an interest rate of 12%% per annum with a coupon amount of US\$63250. The relevant interest payment date will be 22nd February, 1985. Listed on the Luxembourg Stock Exchange By: Bankers Trust Company, London Agent Bank

This advertisement complies with the requirements of the Council of The Stock Exchange in London.

It does not constitute an offer of, or invitation to subscribe for or purchase, any securities.

OLC

Orient Leasing Co., Ltd. (Orient Lease Kabushiki Kaisha)

(Incorporated with limited liability under the Commercial Code of Japan)

U.S. \$30,000,000

13 per cent. Guaranteed Bonds 1989

ISSUE PRICE 100? PER CENT.

Unconditionally and irrevocably guaranteed as to payment of principal and interest by The Taiyo Kobe Bank, Limited (Incorporated in Japan)

The following have agreed to subscribe or procure subscribers for the Bonds:

Daiwa Europe Limited

The Taiyo Kobe Bank (Luxembourg) S.A.

Banque Bruxelles Lambert S.A. **Chemical Bank International Limited**

above or from the brokers to the issue.

Citicorp Capital Markets Group

Banque Paribas Kleinwort, Benson Limited Nomura International Limited

Toyo Trust International Limited

Morgan Guaranty Ltd Norddeutsche Landesbank Girozentrale S.G. Warburg & Co. Ltd.

The Bonds of \$5,000 each constituting the above issue have been admitted to the Official List by the Council of The Stock Exchange, subject only to the issue of the Temporary Global Bond.

Interest will be payable annually in arrears on 4th September in each year, commencing 4th September 1985. Particulars of the Bonds and the Guarantor are available in the statistical services of Extel Statistical Services Limited and may be obtained during usual business hours up to and including 12th September, 1984 from the

> Vickers da Costa (U.K.) Ltd. Regis House,

> > 28th August 1984

This advertisement complies with the requirements of the Council of The Stock Exchange in London.

It does not constitute an offer of, or invitation to subscribe for or purchase, any securities.

SEK

AKTIEBOLAGET SVENSK EXPORTKREDIT (SWEDISH EXPORT CREDIT CORPORATION)

U.S. \$250,000,000

Zero Coupon Bonds Due 1994

ISSUE PRICE 32.925 PER CENT.

The following have agreed to subscribe or procure subscribers for the Bonds:

Daiwa Europe Limited

Morgan Guaranty Ltd

Al-Mal Group

Banque Bruxelles Lambert S.A.

Merrill Lynch Capital Markets

The National Commercial Bank (Saudi Arabia) Société Générale

Enskilde Securities Morgan Stanley International PKbanken

Algemene Bank Nederland N.V.

Syenska Handelsbanken Group Swiss Bank Corporation International Limited

The Bonds of \$10,000 each constituting the above issue have been admitted to the official list by the Council of The Stock Exchange, subject to the issue of the Temporary Global Bond.

Particulars of the Bonds are available in the statistical services of Extel Statistical Services Limited and may be obtained during usual business hours up to and including 11 September, 1984 from the above or from the brokers to the issue.

Cazenove & Co.

12 Tokenhouse Yard

28th August 1984

SIAR AMERIKAN AMERIKA

MACON
MICA
MEDIA
MIGMIST
MIGMI

Sauck
Hartmer
Hartmer
Hartmer
Hayes
Hayes
Hayes
Hacks
Hacks

| 12 | Manta | 12 | Manta | 13 | Manta | 14 | Manta | 15 | Manta | 15 | Manta | 15 | Manta | 16

188 27 24 27 7 11 5 25 11 14 34 4 4 27 64 17 2 11 18 18 18 17 24 20 10 4 75 11 30 36 12 18 17 24 20 10 4 75 11 30 30 36 1 Stock
Elicor
Elector
E 28 100 445;

Steek GU PART STEEL STEE 了。我也是以我们有只是不是我们,也还有人在我们的我们们是我们的我们也是有什么的,我们也是我们的人的,我们也是我们的人的,我们是我们的我们们就会的人们的,我们们就 <u>เช่นกระที่สัตร์ที่จัดจัดก็ก็ก็คอกเก็ก้หลักเด็กก็สักดีเด็กรัดจัดสัสด์ก็สักด์ที่สมักดีจรักดีจระที่สมักดีจระที่ส</u>

其正对他的创作的对话的对话,如果不是有一个人的,我们是一个人的,我们也不是一个人的,我们也是一个人的,我们们也是一个人的,我们们也是一个人的,我们们的一个人的,

EGG ESyet EagleP EastAr EAL ESAIr EAR EASTUS EstOn Echlan Echlan

7 30°24 154 154 154 157 20°14

GBIS COST A FE CONTROL OF THE STATE OF THE S 24的社会的现在分词,我们就是一个人的,我们就是一个人的,我们就是一个人的,我们就是一个人的,我们也是一个人的,我们也不是一个人,我们也不是一个人,我们也不是一个人,我们也不是一个人,我们也不是一个人,我们也不是一个人,我们也不是一个人,我们也不是一个人,我们也不是一个人,我们也不是一个人,我们也不是一个人,我们也不是一个人,我们也不是一个人, 12 4 5 6 6 F. L. S.

Kidder, Peabody Securities

Market Makers in Euro-Securities

Founded 1865

New York • London • Paris • Geneva • Zurich • Hong Kong • Tokyo

"你是我说,我也对下来没有几天的现在分词的我的现在分词不是的的,我也是我们的一个一个人,我们也不是一个人,我们也不是一个人,我们也可以是一个人,我们也可以是一个人,我们也可以是一个人,我们也可以是一个人,我们也可以是一个人,我们也可以是一个人,我们也是一个人,我们也不是一个人,我们也可以是一个人,我们可以是一个人,我们也可以

53 227, 339, 13-15. 461, 174, 163, 184, 351, 195, 195, 304, 22

UNHO LEE MY LLCCL LICCL LEE MY LLCCL LICCL LICCL LICCL LEE MY LLCCL LICCL LICC 276617 20 218618 20 218618 37.5 16 12051.0 16 12051.0 10 12051.0 10 120520 341815 180368 15

هكذا ميهالتهو

HRT Halles Halled Halled Harse Hand Hand Hand Harse Harse Harres Harres

	は、4、19 19 3、19 19 6、2 22 3 4 7、22 3 4 7、22 3 4 7 22 3 4 6 5 5 2 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
NE	336 - 12 24 + 13 112 - 12 113 - 12 114 - 12 115 - 1
W	12 mm 15 20
Y	CONSTRUCTION OF THE CONSTR
ORK	THE STATE OF
ST	了。
OC	3017 8 7 15 16 16 16 17 18 16 16 17 18 16 18 18 18 18 18 18 18 18 18 18 18 18 18
KI	4451133396 235117234651389.113612344 45516136250771423409 82393,415 5513463622 7. 113112 613645345237723343737741
EXC	Duniss V Duniss V Duniss V Duniss V Duniss V Duniss V Duniss 400 EECO 3
HA	2 20 15 20 19 12 16 14 19 22 10 10 10 10 12 12 12 12 12 12 12 12 12 12 12 12 12
N	8 V 22 3 4 2 7 5 7 3 4 1 2 4 2 3 5 5 6 8 5 7 11 3 7 7 7 8 5 5 7 7 7 8 6 1 2 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1 1 5 1
GE	1000000000000000000000000000000000000
CC	3、 22、 3.17 3.1 3.15 3.15 3.15 3.15 3.15 3.15 3.15
M	Home:
PO	502 49 9 502 13 11 H - H - 1 56 88 8 50 32 10 24 5 12 7 7 10 55 48 9 10 8 5 51 24 6 49 6 51 34 6 51 34 6 10 34 6 13 34 6 13 34 6 13 34 6 13 34 12 14 6 15 6 8 13 34 11 15 6 8 13 39 11 15 27 10 16 6 8 17 12 18 16 17 12 18 16 18 14 19 15 18 14 19 15 18 15 11 18 16 16 18 17 18 16 18 18 19 16 18 18 19 16 18 18 19 16 18 18 19 16 18 18 18 18 18 18 18 18 18 18 18 18 18 1
SI	31337801 07 31 M2 J 16 577 K 027 5 28 15 16 16 16 16 16 16 16 16 16 16 16 16 16
TE	46 46 4 6 2 6 5 5 5 6 5 6 5 6 6 6 6 6 6 6 6 6 6
C	1
Ω	100 100
SIN	中では、
1G	#2504122591 M 1995758445186761451668676558119811198746
PR	不是不是我们的,我们就是一个一个一个,我们就没有一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个
RIC	20、 60、 60、 60、 60、 60、 60、 60、 60、 60、 6
ES	如此,我们们就是这种情况的是一种的人,我们们们的是是一种的人,也是是一个人,也是一个人,也是一个人,我们们就是一个人,我们们就是一个人,我们们就是一个人,我们们就是一个人,我们们就是一个人,我们们们的一个人,我们们们的一个人,我们们们的一个人,我们也是一个人,我们们们们的一个人,我们们们们们的一个人,我们们们们们们们们们们们们们们们们们们们们们们们们们们们们们们们们们们们们
	PERMIT PROPERTY AND PROPERTY AN
	### ##################################
	Proce 1

Sacti Table

<u>でおんじゅう ロビザビアが行 年と近代を思考しまる お日まなお はじながり 91月 ロビルズかんな 4 まななのの</u>

P/ Sis 5 1003 High 2384 354 87 103, 6 186 32 3 1380 437, 9 1291 23 8 161 89, 6 1652 72 Months | Proper | Desce (Inote: 3572 10% 32 43% 23 61/2 1672 Div. YML E 220 52 9 1 06 89 5 36 1 1 16 1 58 38 23 50 22 19 1210 13 8 24 15 15 100s 45 1475 84 35 45 268 Stock Reythn ResdBr RoBan RoBat RitRel RechEq Snuck SterPed Signal Sugni Singer Stryline Smethir Smikili 154 434 104 191₂ 221₄ 111₉ 15½ 57¼ 59¼ 35% 30¼ 23½ 28½ 301, 83, 235, 325, 177, 6 164 344 75 164 22 91 9 Pennzo Peopler Pepilos Perice Perice Perice Perice 354 105 375 434 721 9 151₉ 435₅ 101₅ 191₇ 221₄ 111₆ 22500 56% 2100 6892 1106 8892 1196 40% 1596 40% 1596 40% 1006 72 39 46 48% 27 16% 27 16% 28 28 28 28 31 35% 147 69 31 35% 147 69 31 35% 2.66 5.5 46
pt2.50 13. 2 7
2.5 4 13 455
pt2.50 13. 2 7
2.5 4 13 455
pt2.50 13. 2 7
2.5 5 13 455
pt2.51 7 147
pt.51 7 423
pt.51 484 161 167 374 365 365 365 687 4812 194 195 207 344 643 803 · 的比别专作对外的分别的代数代别不同的存储的名词名或我们的的的问题的任息。我为了的代码的的下文的作用 Pentra Printer Smitch
Sm Newsing Newsian Norther Norther Norther Norther Number Names Names Record Repart Re Cettled Cettle - in the second 23 1 4 40 6 6 7 1 2 3 3 3 3 4 4 5 6 7 1 2 3 3 3 3 4 4 5 6 7 1 2 3 3 3 3 4 4 5 6 7 1 3 3 3 3 4 4 4 5 7 1 3 3 3 3 4 4 4 5 7 1 3 3 3 3 4 4 4 5 7 1 3 3 3 3 4 4 5 7 1 3 3 3 3 4 5 7 1 3 3 3 3 5 4 5 7 1 3 3 3 3 5 6 7 1 3 3 5 7 1 而各种的中国地方下的通过已经经未用的对象的对于电话编译比例不识别也知识也为图形可以图影响可以图·特别图书的电话的数据图形设计 PHAMMAPA AND PROBLEMS OF PROBL 25548411434454526222333324525455556734442366674415223366225745557 21431615116336646686377323324368356437734446666714752223622382332 304 354 37 872 304 16 314 16 21 22 87 852 3512 31 81 2554 6 31454 2504 1907 6114

192 99 8 192 81 10 m 20 6 23 58b 41 11 104 46 8 5 22 56 49 9 66 34 5 8 pr.25 63 1045 17 2 22 11 10 pr.29 17 pr.29 17 pr.29 12 pr.29 12 VF Cp Valero Valerin Varco Varco Varco Varco VectSe Vacom VaEP VaEP VaEP VaEP Varad Vacam 21% 6 14 25% 121 35% 121 4 8 8 23% 121 4 8 23% 511 14 21% Series of the series and the 20.00 P 20.00 50000 40000 100000 100000 100000 100000 100000 100000 100000

584, 1002 Night 270 63 58 1234, 704 354, 214 374, 955 615, 1214 327, 668 344, 569 194,

494₂ 115 225 235 257 257 277 Stock USSII USSII USTOD USWOI USWOI UnTch UTch

Continued on Page 18

WORLD STOCK MARKETS

		<u></u>		ED 510	CIL III	ARREIS			
AUSTRIA Aug. 27 . Price 4 or		NORWAY Aug 27 Price 4 or	AUSTRALIA (continued) JAI Aug. 27 Price + or	PAN (continued) Price + or Aug. 87 Yan -	OVER	THE-COUNT	TER	Nasdaq national mari	cet, closing prices
Navo Ind. 1035 115	D'sche Babcock 147.5 — 0.5 Daulsche Bank 322 — 5.5 Dressdner Bank 149.8 — 2.4 GHM 134.3 — 2 Hochtef 500st 140.8 — 2.4 Hochtef 500st 140.8 — 2.4 Hochtef 500st 166.2 — 1.1 Hoesch Warkc 94 — 0.3 Holzmann IPI 412 — 2.2 Horten 168 + 4 Kaii und Salz 218.8 + 1.3 Xarstadt 252 — 2. Kudhof 265.5 — 1.4 Krupp 76 Linde 355 — 1.4 Krupp 76 Linde 355 — 1.4 Krupp 166.5 — 1.4 Krupp 176 Mannesman 138 — 0.7 Meresdes Hid 472 — 3 Mattaligasell 210 — 4 Muench Ruack 1050 — 374 Muench Ruack 1050 — 375 Meresdes Hid 472 — 3 Muench Ruack 1050 — 374 Muench Ruack 1050 — 375 Menens 397, 5 — 35 Bemens 397, 6 — 35 Bemens 397, 6 — 35 Genarali Assicur 34, 600 — 390 Invest — 38 Genarali Assicur 34, 600 — 390 Invest — 4553 — 28 Finsider — 38 Genarali Assicur 34, 600 — 390 Invest — 172, 6 — 1,4 Manledman 1,260 — 100 Proli Co 3,025 — 70 Proli Co 3,025 — 70 NETHERLANDS Aug. 27 Price + or Fis — 70 ACF Holding 18K 80 Aug. 27 Price + or Fis — 70 ACF Holding 18K 80 Aug. 27 Price + or Fis — 70 ACF Holding 18K 80 Aug. 27 Price + or Fis — 70 ACF Holding 18K 80 Aug. 27 Price + or Fis — 70 ACF Holding 18K 80 Aug. 27 Price + or Fis — 70 ACF Holding 18K 80 Aug. 27 Price + or Fis — 70 ACF Holding 18K 80 Aug. 27 Price + or Fis — 70 ACF Holding 18K 80 Aug. 27 Price + or Fis — 70 ACF Holding 18K 80 Aug. 27 Price + or Fis — 70 ACF	Borregaard 300,5 - 25 Christmain Bank 145,5 - 5,5 Christmain Bank 145,5 - 5,5 Confloratic Cred 154 -0.5 Norsk Datz 337,5 + 1.5 Norsk Datz 337,5 + 1.5 Norsk Hydro 627,5 - 6.5 Storebrand 210 -0.5 Storebrand 230 -0.5 Beo Bilbao 344 -2 Beo Bilbao 344 -2 Beo Cantral 359 +1 Beo Exterior 206 -1 Beo Exterior 206 -1 Beo Exterior 206 -1 Beo Exterior 207 -1 Beo Sandal 234 -3 AFA 157 -1 Telefonica 91,2 -2 SWEDEN Aug 27 Price + or Kronor - AGA 367 -2 Affa Laval 234 -3 ASEA Frec 360 -1 Cardo 157 -1 Boliden 157 -1 Boliden 150 -3 Standia 232 -1 Bellulosa 132 -1 Bellulosa	Gen Prop Trust	Par. 8res 2.18 — 0.01 ape 8hd 2.96 + 0.08 el Shippard. 2.11 ; — 0.04 y Banking 9.15 ; y Brows 6.95 ;	Sanch Selection Selection	## 24 22 23 Barrier Base 5 1 Barrier Base 5 1 Barrier Base 5 1 Barrier Base 5 1 Barrier Base 5 10 Barr	126 22 211, 211, Gronts 19 44 432 44 -1, Gronts 42 51, 8 8 -1, Gronts C—C C—C 87 71, 71, 71, 71, Outure 386 91, 94, 95, Gronts	(1) 10 10 10 10 10 10 10 10 10 10 10 10 10	Sheek Sales Hagh Loss Leith Hadds Loss Loss Leith Hadds Loss Loss Leith Hadds Loss Loss Loss Leith Hadds Loss Loss
Silect Stock High Low Date	5875 Cay Res 158 2871 Doon Dev 157 2700 Doon A 175 2700 Doeston S 181 175 2700 Doeston B 1 5174 270 Doeston B 1	Low Close Cang Sales Stock		A \$75% 23 23% - 16 8 1 350 350 350 -10 8 1 350 350 350 -10 8 1 350 350 355 9 19 19 19 19 19 19 19 19 19 19 19 19 19	29½ Tè Verbro 21½ 15½ VVAPC 13½ 3½ VVAPC 2½ ½ Verre 18½ 5½ Verre 8½ 5 Verre 11 9½ Verre 114 3½ Verre 544 41½ Verre 19½ 8½ Verre	400 21 9 27 10% 19% 18% + 16 10 71-18 11-18 11-18	12 Month High Low Stock Bir, Yid E 100s H 102- 71s Witchell 4 2 1 21s Witchell 4 2 100s H 41s 21s Witchell 12 15 11. 11 28 41s 35's Wirds 12 15 11. 11 28 41 35's Wirds 12 15 11. 11 28 41 35's Wirds 12 15 11. 11 28 41 17's 12's Wirds pf 15 13. 19 11 17's 12's Wirds pf 15 13. 19 11 17's 12's Wirds pf 15 13. 19 15 15's 11's Wirds pf 15 13. 19 15 15's 11's Wirds pf 15 15 15 15 15's 14's Yirds 1 10 12 17 78 8 NEW YOL	Logic of tem-	EPR 2 215 215 215 Pr pr 5 18 200 374 324 324 rpl 2 45 9 782 444 431 44 rc t50 4 8 9 55 315 314 314

AMERICAN STOCK EXCHANGE CLOSING PRICES

	s Siz			ls High 7	Low	Clese Outit	Ch ge Prev Clear	12 Mg High 134	LOW 101-	Stock SCEd	P/ Orv Ytd. E el1 45 12	11	, High 1:4	115	Clase Quate	Close - L	12 Mx High	Low	Stock Tensym	Orv. Yk	4 E	100s			Carp use Previous ote Cless
6	, SD-	g' 1 13	1	76	7%	74	+ 4	25	163	SCE4	p/8.54 11 p/2.30 12	3	15	75	184	4 1	451g	311. 512	Techico		13 8		64 5	4 0	
U. 5		pf 80 13. p4 65 14	.125 1	0 59	444	591 ₂	-1 -4	195]	16 532	SCE4	pt2.21 13 pr7.56 13	§	5	17.	177	- 14	184	24 17,	Techon	524 2	38	252	34 3	14 34 104 10	
74 31 24 19 30 30 31 54 54 54 64	· ==	per 65 14 V 255 17 13	1 2	19 ×	19 V	35	-5	75 161>	31,	SCErt Sprioms	pr8 70 13	1	5 Y	69	69	<u>+1</u> 1	41 ₂	1½ 81	Teresa Teresa	n 20a 2	5 68	23 23050	24 2	100 10	- 4
14	≨ Sand	'e RC.610	4	304	30'-9 -45g	30°	+ 5	113	154	Sprik Spectro	pf 1 13 14 6 12	3	23	231	2302	-5	.77 32%	31 ₄ 214	Telecon		5 13	25 17	34 3	3	,
, S		71 13		8.5	5%	85	+ 11	15	91.	Spercer	24 1 4 14	153	13.4	13	13	-3	135	9 `	TelDte	36 3	710	83	91 3	15 15 15 15	} - }
4			. 22	-1	2:14	E,	+ 4	1115	25g	SœO S⊬avn	w4 08 1 € 75	8 112	2	3 5%	54.	ı	발탁경	124 24	Telesco			14	154 1	5 15 C 72	4 - 4
1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Schw	ab 49 34 n	14	1. 1 5-1	124	124	-1,	284 65	13% 51%	StaFrd StaSte	80 42 5 279t 43 9	51	191	19:	79's	-5	344	25-2	Texto	g1 20	3	7		4 4 10, 10	F. +1
1:2 -1	s Sales	16	6	234	201	224	-14	171	d:1	Started	14	ż	10:	10%	641 ₂	-5	Se 214	54	Tesas	391 4		215		2 7	
i n		m	45	351g 13	30 4 1.14	35°4 13	+ 4	5.	20%	States States	#2를 11	1	16.	:01.	101; 231,	-1	32	16-2 64-	TeuAE	DI.	11	109		95 20 73	- Ig
92, 54 2 1			23 5	3"1 ₃	3"-e	371) 11	+4	1852	1412	Stepan StriCap	84 37 10	612 5	177.3	127	174	* * *	34, 94 ₂	24	Thorên ThDA	n .10 1	13	13 15	25 2	25	-4
	SeeC	p 120118	.3	11'5	116	114	+ 5	44	215	3let	18	11	3.7	5-1 3-1 13-1	5½ 2: ₂	-:5	191	34	Tiches	n .10 1		11	4 4	4 A	
			r	4: ₂	#! 2	44 <u>.</u> 2	++	144	43 ₉ 65 ₉ 15 ¹ 9	StriExt SteriSit	03a 4 .29	62 7	14	134	124	-51	8: ₂	78	Totle!	g 24	11	13	7 6 94 9	5, 7 5, 9,	+¥
9 39			6	354	45	45,	-%	17-2	1519	StorEq	1 64 11, 14	4	17 ₄	1	7	+ 1	51 ₂	15	Towner Trast.	01 4 10 1		40	24 . 5	2.	•
	S-4-:	T.	32	3.5	33,	37 143		10%	557	SurCty	7 -	13	85	27. 84.	274 8%	-42	44	95	TranEn				13-16 1	104 10 11-15 4	4 -4
. 11 L. 74			8	14 ¹ 3 125 ₈	1419	143	-1,3	1112	73 50	Sun3L Sunar	24 36 13	45 4	8	65.	64	-14	20°2	114 84	TmsTec TnSM	.58 4 .40a 4		58 10	131 1	125 13	* - *
265 5	16 Serve	7 621 11 4	ģ 131	5 g	54 324	5) 20 1;	- 12	101-	57 57 16	Sunanc	_	23	64 27 27	85 ₂	8:4		712	43	Tration		38	2	4	S. 45.	
15 14 Ti		MI	36	u13	1: -			3112	76	Sup Fd Sup Cre	406 17 11	76 35	ii.	23	23		144	7	Trace	,		17 13	144 1	34 13	
• •	Sharr Sharr		5 7£	12	12 2	12	-: 1	13%	61 ₂ 10%	Supind Suprs:	1511 17 9 32 23 10	:37	173	13.2	9		225	1712	TurnC	44.7 51 19.4		<u>파</u>	12s 1	24 12	4 - 4
G 5:	Shop.	a 162.13 🗵	J	01 12%	12%	124	Ĭ,	53	35	Susqueh	13	43	5-0	5	5		74.	3.7	Tyler	M	30			7, 20	2 -4
	n Swea ∂'co	350 2 7 10 20 2 5 7 5	±19	114	111 ₁	113	**	117a	:912	Swaran Swith	120548	19 60	51°2 23°2	<u> </u>	5 27%	+ 1				u	– u	-U			
r, 8	Set a Sense	a 20 18 10	<u>B</u> 1	11 36	10%	11 35	- 1	94	65-7 33-2	Syratry System	321 55 .12 (1861	31 13%	21.	64	6.	-1	7 24%	31 ₂	USA Ultrrito	ind	18	.33 385	3½ 3 22% 2 11-16 4	1, 37, 2 20	5 -1
i 🤼	a Smrt	1 50 1 8 10		u 18 ₄	31. 91	994	+64	7	4-3			-	1248	۱3 ب	-1	- 1	11,	17	Uncorp	-		4%	11-16	11	16 +1
	Erin Smini		60 18	175 175	125 134	135	+ 5	113	6	1ear	T-7- \$11 58 27	-1 27	€°5	FS-	25	-12	197 ₁	345	UArPd UnCosF	545 J		5		67 18 67 35	4
1.	. Street	2 14 13	1,7 10	14 EJ ₃	14	14 64	- 1	114 405	54	fec Tie	.OE 7 27	20	114 134		11	- 1	44	24 24	UFCCCA UFCCCB	10 4	0 17	-23	25 2	1 21 ₂	+ 4
5	Soits		16	15	64 15	15	ĺ	21%	10%	Tit	14	2133 34	123	131 ₅ 127 ₂ 167 ₃	12.4	+ - 1	41 ₈ 181 ₄	102	Littled	65t S		20		J 13	í
) 91- 71	Sae:C \$.JEa	ap 35e35 p⊓05l2	1 23	10 ² 4	104g	10. ₂	-,	16 ¹ 2 18	13	TabPd TandOr	a 20 1.2 12	63	174	167	17	: 5	21 54	EF.	USAG -	M.		24		5 15 1 B	} \
· '4	SCEA	c11 D6 17	33	3	24	84		402	104	Tasty	.40 36 12	5	1114	11-4	114	- 1	10%	64	Unite/V	9111		45	B 8	10 Bl	1
ا عاد انگا	SCEd SCEd	pf* 19 13 pf4 G± 10	-100	34. 23/2	39 ¿	91, 39/2	- 16	8 74	31 ₅	TchAm	h	1Ø1	ŠĘ.	35	4 34	-4	101	7.	UnvCm UnvRs		19	54 197	103 1 87 8	L 82	

It's easy to complain about advertisements.

Every week, millions of advertisements appear in the press, on posters or in the cinema.

Most of them comply with the rules contained in the British Code of Advertising Practice and are legal, decent, honest and truthful.

But if you find one that, in your opinion, is wrong in some way, please write to us at the address below.

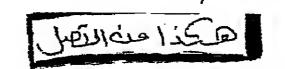
We'd like you to help us keep advertising up to standard.

tandards Authority.

The Advertising Standards Authority.

If an advertisement is wrong, we're here to put it right.

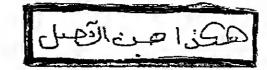
ASA Ltd., Brook House, Torrington Place, London WCIE 7HN.



Wahirm
Wahirs
Wahir
Wahi

halay Angua 20 18

ion in the co



WORLD STOCK MARKETS

OVER-THE-COUNTER Continued from Page 18 4 4.4.4 .01a +4 +2 1,40 -1 -⅓ - 4 + 4 + + + 10 4 + MCA Cp NAME NAME THE MICHAE MI 444444 +% +# -p 4444 444 Sundia 机燃料机造物水水 19 多面形形形成了 机链球球 有不合性的模型 经数据 1850 的现在分词 1850 的复数形式 1850 的复数 7 III. Litting Littin +14 +14 +14 +14 · 新州湖市中央的城市。4期,南州北城城城区河州为西州,新州省。 斯特斯特斯森的 人名英克勒斯特地名 医阿尔勒氏菌虫 444.444 69 17 788 57 183 45 580 41 772 264 1 19 16 5 568 9 644 91 16 18 178 410 177 18 16 18 178 410 177 4 CCG Tr. Cost-III Cost 118 58 55 64 28 213 219 x137 201 x50 6 821 285 149 11 193 196 63 69 444444 **-**52 -<u>1</u>2 +14 -12 PNC 2.32 Pabet5 PacFat PacFat PacFat PacFat PacFat PacFat PacAt Pa 283 101 2 129 53 19 66 143 100 47 11 379 770 1809 489 11 326 489 11 56 MCI MIW MTS Sy Mecag B MacAlta MacAlta MagCit MagCit MagRit MagCit Martina Mar +4-4-4 +4 WO 40 Whatel Waste 444444444 1+++ 4 420 1.50 Piccide Pionite Pionite Pionite Powel Powel Powel Powel Powel Powel Progray Proces Progray Pro English Startag Starta 2010032512120161155 4-44

WALL STREET

Reassessing induces setback

FINANCIAL MARKETS suffered a setback on Wall Street yesterday with a sharp early fall in stock prices being at-tributed to a degree of weakness in the credit markets which took some operators by surprise, writes Michael Morgan in New York

Trading was unusually slow, however, and this was attributed to a heavy holiday schedule affecting parts of Wall

By the close, the Dow Jones industrial average was down 8.81 at 1227.92 on volume of 58m shares. During early afternoon trading, the measure had been down 13.36 points. In the broader market, the American Stock Exchange index dipped 1.09 to 211.93.

The credit markets turned lower behind a Federal funds rate which opened slightly higher at 11% per cent and later

touched 11½ per cent.

At the longer end, the price of the key long bond, the 12½ per cent of 2014 shed more than a full point at times to dip be-low the 100 level. Late in the day it was priced at 99.12 for a loss of **mbasis

At the short end of the market, the yield on three-months Treasury bills jumped 19 basis points to 10.66 while six month bills added 16 basis points to 10.73. Money market rates also turned

higher.
The downturn in the credit markets followed a weekend during which Wall Street reassessed the minutes of the July meeting of the Federal Open Market Committee which, while they contained no particular surprises, did rule out the possibility of a further easing of credit policies.

The market also felt the effects of a good supply of both Treasury and corporate issues, not matched by retail de-

The Treasury plans another active week. Following its regular auctions of three and six-month bills late yesterday, which produced yields of 10.60 per cent and 10.70 per cent respectively, a further \$6.5bn of five-year notes are to be auctioned on Wednesday and \$8.25bn of new one-year notes will be auctioned on Thursday.

Despite the low volume in the stock market, institutions were active with large block trades of 150,000 shares in Tenneco, the diversified energy group, International Harvester, the truck and farm machinery manufacturer, and Chesebrough-Ponds, the health and beauty products group.
On the New York Stock Exchange,

AT-&T was unchanged at \$19% as it announced plans to cut 11,000 jobs to reduce costs and stay competitive in the th technology ing business. General Electric fell \$% to \$57% after

plans to reduce its workforce by 1,700 because sluggish sales were forecast for 1985 and inventory levels had now returned to normal. Among blue chips, IBM shed \$1 at \$124% and General Motors dipped \$% to \$75.

Teledyne, the electronics and avionics group, fell \$1% to \$263%. Texas Instru-ments shed \$1% to \$144% while the photographic and chemicals group Eastman Kodak dipped \$4 to \$76. NCR, the business systems and cash registers manufacturer eased \$\% to \$28\%.

Against the trend, farm machinery

makers edged higher following press comment on the outlook for the industry. International Harvester added \$1% to \$8% amid firmly dismissed market rumours of a possible bid.

On the American Stock Exchange, American Motor Inns, unchanged at \$21% was among the most actively traded issues in the wake of the bid battle by American Hotels and Prime Motor Inns.

TOKYO

Spectators crowd the sidelines

A DRAB session in Tokyo yesterday left prices slightly higher in very light trad-ing as investors, generally passive to-wards the end of the month, failed to find any strong incentive, writes Shigeo Nishiwaki of Jiji Press.

The Nikkei-Dow Jones average gained 5.06 to 10,568.72 for a five-day rise of 57.69. Voluma contracted sharply to 155.04m sbares from Friday's 240.36m with gains outnumbering losses by 370

Investor interest in stocks has faded despite an improved investment climate. Business performances bave been advancing steadily and the yen rebounded from a low of 247 to the dollar.

With many institutional and individual investors digging in on the sidelines, the market was shored up by active trading in some incentive-backed issues. Nippon Gakki returned to favour on

renewed interest in the company's re-Markets in London and Hong Kong were closed for public holidays.

search and development of a Thyristor semiconductor. It added Y40 to Y1,040 on volume of 7.1m shares, the largest for

Oki Electric rose Y14 to Y765 on reports that it has developed a transistor using gallium arsenide materials capable of light emission, reception and am-

Blue chips were mixed in thin trading. Toyota Motor firmed Y20 to Y1,480 and Matsushita Electric Industrial Y20 to Y1,670, but Hitachi eased Y10 to Y845 and Sony Y30 to Y3,410.

The bond market was depressed in both over-the-counter and inter-broker trading. Institutional investors and secu-rities firms awaited a clearer trend in bond prices. The yield on the benchmark 7.5 per cent government bond due January 1993 rose in small-lot selling to 7.245 per cent from Saturday's 7.220 per

AUSTRALIA

THE ABSENCE of a clear direction from mixed in subdued trading. The All Ordinaries index closed 0.2 higher at 744.7. BHP added 10 cents to A\$10.75. Bell Resources 5 cents to A\$4.55 but CSR

slipped 1 cent to A\$3.37. SINGAPORE

LACKLUSTRE trading in Singapore left prices mostly lower. The Straits Times index ended 4.40 off at 926.37, with losses outpacing gains by more than three-to-one

The single feature was National Iron, which shed 26 cents to S\$4.12, after a 68.8 per cent drop in first-balf net prof-

For more information contact your travel agent or Gulf Air.
73 PKCCADILLY, LONDON WIV 9HF. TELEPHONE 01-409 1951, MANCHESTER 061-832 9677/8, BIRMINGHAM 021-632 5931, GLASGOW 041-248 6381 OR KEY PRESTEL 223913

EUROPE

Oils prove source of inspiration

A BELIEF among European investors that the influences governing last week's market movements had not yet run their course was evident yesterday although some bourses were deflated due to the closure of London markets. A

number of oil shares on different exchanges featured strongly, however.

Paris opened the week with investors stimulated by a cut in the call money rate to 10% per cent from 11% while the start of the new account on Friday continued to prompt buy orders. The main feature of the session was Petroles BP which spurted ahead by 32.5 per cent with a FFr 27.30 gain to FFr 111 after Friday's suspension due to a buying im-balance. The group is a member of a consortium led by Elf which has discovered oil near Pau, south-west France. Elf finished unchanged at FFr 235, after a rise of over 10 per cent in the last

Elsewhere, constructions and electricals were fovoured while Peugeot rose FFr 4.90 to FFr 213.90 amid renewed boardroom conflict

High-technology names attracted most attention in Frankfurt with Nixdorf extending its recent rises with a further DM 4.50 to DM 520.50 and PKI DM 11.50 stronger at DM 535.

Deutsche Bank retreated DM 5.50 to DM 322 in a broadly weaker banking sector while profit-taking and further consideration of the chemical sector's recent profit declarations saw further losses. Schering was weakest with a DM 3.50 fall to DM 351.50.

The Commerzbank index dropped 3 points to 984.4 while an ambivalent bond market sought, but failed, to find direc-

Low volume and a lack of enthusiasm saw Amsterdam edge lower with the ANP-CBS index 0.4 off at 165.5. The 1985 draft budget was viewed neutrally while some still bold out hope for a cut in U.S.

Banks starred in Brussels on hopes of a discount rate cut tomorrow while industrials witnessed market leader Petrofina drop BFr 120 to BFr 7,490 on profittaking as the group denied suggestions that it is seeking a listing on the New York Stock Exchange.

Losses developed on a broad front in Copenhagen with Novo Industri the main exception with a DKr 115 rise to DKr 2,035

Both Zurich and Stockholm ended mixed in subdued trading while foods were the only bright spot in Madrid. Milan tended firmer in light trading.

SOUTH AFRICA

GOLDS closed little changed in n weaker Johannesburg. Trading was dull with the lack of direction on the bullion market emphasised by the London holiday. Randfontein lost 50 cents to R69, Mar-

ievale 30 cents to R3.55 and Vlakfontein 15 cents to R3.05, while Western Deep Levels added R1 at R74.50.

CANADA

A WEAKER tone emerged in Toronto with only base metal mining issues showing any degree of firmness. Golds were especially weak and energy issues also off.

Montreal mirrored the lower trend, although the weakness was less marked.

WORLD INDICES

118.33 117.18 18.91 119.30 127.03 (19/1) 108.36 (24/7)

		1					19	84	Since Co	ساندانده			-			Acq 21		1984		Since Compilation	
	27	7	23	22 22	Aug 21	20 20	High	Low	High	Laser		27 27	24	23	22		20	fligh	Law	High	Low
Industrials	1227.92	1235.53	1232.44	1231.78	1239.73	1218.88	1286.64		1287.70		Industriels	125.21	190,38	125.77	198.38	186.57	190.68	188.63	187.74	134,84	3.67
Transport	519,96	528,62	822.87	524.27	528.95	512.46	612.63 (0/1)		612.63 (0/1/84)		Composite	166.AL.	187.51	152,12	187.51	157.05	1 \$7.83	199.34 (5/1)	147,82	172.15 (10/19/83)	
Visibles.	125.25	128.72	128,82	129.48	130.36	128,30	134.33	122,25	183.72	19.5	Ind div yield %o				Aug 15		tug 8	Aug 1		Year Ago (Approx)	
Trading yel	-	BEL64	\$3.13m	11 0 e	128.14m	75.40e	-	-	-	-					4.61 11.52 12.65		3,52 11.45 12.60	18.1	B4	14.3	
			\top	Aug 17	Aug	. 18	Aug 3	7	Your Age (Appres!							_		_		
and Div Ylebb	%			4.78	4,1	84	4.71	[_	4.6												
	:		. No.	we York	Active	Stocks					******				_			,			
		Stocks	3.00	n China				tecks.	3.00p.m		TORONTO			Aug.	Aug 24	Along 23	Aug. 22	ļ	1	954	
lot! Harv			Price			Per		reded 33,000	21%	Dey			ı	27	24	23	72	К	ligh	Lor	W
Democ Lt _		1,015,600 1,77,800	1234			Lymch		22,000	31%		Mete	a 2 Minks		2351.1 2354.)	2003.5	2572	2020.5	2571.	(12/1)	1641.2	Q\$/78

MONTREAL Particle

AUSTRALIA Ali Ord. (1/1/89) Motel & Hints, (1/1/80)	744.7 478,0	744.5 476.0	747.g 678.0	751,8 483,7	787,8 (B/1) 567,4 (B/1)	646,5 (18/6) 494,8 (24/7)
AUSTRIA Credit Aiktien (2/1/52)	53,26	55.21	68.29	53.2%	. 56.21 (2/1)	55.20 (15.4)
BELGIUM Belgian SE (51/12/65)	167,21	157,55	155,50	154,75	157.B (24/8)	185,28 (4/1)
DENMARK Copenhagen SE (\$(1/55)	180.60	188,54	132,65	192.10	225,21 (29/1)	179,27 (1/6)
FRANCE CAC Gensral (51/18/62) Ind Tandance (60/18/65)	171.8	168.8	168.7 167.7	165.7 167.8	181.7 (8/5) 115.6 (5/5)	155,6 (3:1) 90,4 (5:1)
GERMANY FAZ Aktien (51/12/68) Commerzbank (1/12/68)	358,58 884,4	539,62 887,4	837.97 98\$.6	841.29 843,8		817, 17 (25/7) 917, 7 (25,7)
HONG KONG Hang Seng Bank(61/7/64)	_	895,69	891,12	807.68	1176,35 :19(3)	748,02 (15:7)
Santa Comm Ital. (1872)	219,52	219,52	220,40	218,19	229,52 (1/2)	152,00 (2/1)
	10669,72 815,84	20654,89 814,52		19584,5 8 15,59	11,100, 17 (4·5) 876,62 (2/4)	

Aug. Aug. Aug. Aug.

Capital Intl. (1 1/70)		185.1	194.90	184.7	190,515 5:	104,8 (24//
WORLD					190,6 -5 5:	104 0 .94.7
SWITZERLAND SWISSBARK CPO.(51/11/58)	580,5	540.8	891.5	5 82 ,4	888,5 5 1:	554,5 :25/7
SWEDEN Jacobson & P. (1/1/56)	1500,42	1,505,19	1525.58	1534,68	1594.5 (5:2)	1,388,00 /29/
SPAIN Madrid SE (50/17/18)	167.72	150,07	155,40	129,69	161,05 (6.8)	161,02 3/1
SOUTH AFRICA Gold (1968) Industrial (1968)	(D)		1004,5 900,8	995,6 8,638	1875.6 (5/6) 1105.5 (26/5)	
SINGAPORE Straits Times (1565)	926,78	9 01, 18	952,28	540,80	1071,91 (7)	F67, 26 / 12/
NORWAY Oslo SE (4,1/85)	266.85	265,99	285.47	254,44	250,78 (9:5:	221,67 .4:1:
ANP-CBS Indust (1870)	152.8	132.5		151,8	178.0 (1/2) 167.2 (1/2)	118,7,18/6

tigges 25. Japan Nikes-Dow 1,555 to 152 at 1-1,555 to 152 at 1-1,555 to 152 at 1-1,555 to 152 at 1-1,555 to 152 at 155 at

Gulf Air introduce their high frequency Summer timetable.
The pick of the daily daylight flights. Enjoy the famed comfort of our wide-bodied TriStar jets, cuisine honoured by La Chaine des Rôtisseurs, complimentary refreshments and in-flight entertainment. There's no better choice to the Gulf.



Dubai daily from Heathrow at 10.00*

Except Saturday

ABU DHABI AMMAN ATHENS BAHRAIN BANGKOK BEIRUT BOMBAY CAIRO, COLOMBO DELHI DHAHRAN DHAKA DOHA DUBAI HONG KONG JEDDAH KARACHI KHARTOUM KUWAIT LARNACA LONDON MANILA MUSCAT PARIS RAS AL KHAIMAH RIYADH SALALAH SHARJAH TUNIS

Re-rating

CU after

U.S. losses

new business.

Commercial Union's U.S. operations lost \$110m (£84.2m) in the U.S. last year, as against \$85.6m in 1982. In the first six months of 1984 the company posted a net operating loss of \$34.8m.

Exeter Building

disappoints at interim stage

says. First half turnover rose from

pany are improving in some of the group's companies, but pric-ing remains keen and it still seeks some additional profitable work to maintain the level of

setback for

Stefan Wagstyl looks at James Neill's recovery

Having to move fast to repel boarders

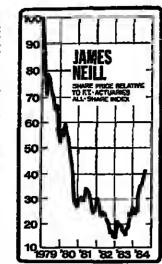
James Neill, the Sheffield-based maker of band tools which is staging a rapid recovery, might be forgiven for feeling wary obout the intentions of one of its biggest shareholders.
For last week, the day before

Neill surprised the City with a 120 per cent increase in interim profits, the acquisitive Siter group, headed by Mr Dsvid Abell doubled its stake to over 10 per

What Mr Abell had seen faster than others was the impact of a recovery programme launched only last November when Mr Peter Bullock, former managing director of lawnmower maker Flymo, took over as Neill's chief

executive.
Suter ia saying nothing about its plans for the 10.74 per cent Neill stake. But Suter, which has activities in refrigeration and air-conditioning, has o policy of building up and making use of strategic shareholdings in other commands.

With a market capitalisation With a market capitalisation of £14m, Neill is not an impossible takeover target for Suter which is Itself capitalised at £27m. Earlier this year Suter tried unsuccessfully to capture the engineering group Francis Industries with a £14m hid, after first acquiring a 26 per cent stake



pre-tax profits fall from a peak of £3.74m in 1977 to heavy losses in 1981 and 1982, before recover-

in 1981 and 1982, before recover-ing to a £0.7m profit last year on sales of £48m.

This year, Neill has made almost £1.4m in six months to tha end of June on sales of £27m including saw blades, magnets, engineers' and mechanics' tools, files and precision measuring

However, Naill, which is 30 per cent owned by the founding family, hopes that its rapid recovery is putting it out of Suter's range. The share price which bas fallen as low as 20p in 1983-1984, hit 80p following last week's figures.

The price movement reflects the action the new chief executive has taken to reorganise and mechanics' tools, files and precision measuring to hand-held computer-controlled measuring device. Whether the Sheffield company struck before charging rationalisation costs of £0.95m — a switch in accounting policy which will clearly allow the figures to be have to move quickly hecause we presented in o fovourable way in any strempt to ward off a take-over. These charges are expective.

ted to come to a further £1m in the second half.

The biggest contribution to recovery has been cutting labour.

Nelli had previously reduced the Nelli had previously reduced the workforce from 4,100 in 1979 to 2,500. But, says Mr Bullock, these cuts hit production workers and spared too many others, especially senior staff. Since last December, the axe has been directed at management and non-production workers, cutting 300 jobs so far with 90 more to go by the end of the year.

Further savings have come

Further savings have come from concentrating production in Sheffield on one of the company's two sites in the city with the evantual aim of clearing that second site altogether for redevelopment. If the plan succeeds sals of the site would greatly reduce borrowings. Production of o third major plant in Warrington is to continue.

Product lioes have been cut to secure economies of scale and eliminate low-margin items.

Retrenchment is not that whole story. With a new emphasis on marketing, Neill intends to make better use of its brand names and to sell tools more aggressively to DIY stores to reduce its dependence on industrial users. A separate unit has been set up to make and sell s newly-launched instrument for which Neill has high bopes—a hand-held computer-controlled measuring derice.

appointing." Depressed contract performance in tha early months continued despite improved weather. New work obtained earlier in the John Beales turns in £609,000 year is now beginning to con-tribute, but it remained difficult to obtain worthwhile margins in fierce tendering competition, be

Pre-fax profit at John Beales
Associated Companies was from 2p to 2.5p for a total of £609,000 in the 63 weeks to May 3.65p for the 63-week period 31 1984 rompared with £461,000 against 3p (52 weeks), in the 52 weeksk to March 19

There was an extraordinary there was an extraordinary against 3p (52 weeks).

Associated Companies was f869,000 in the 63 weeks to May 3.65p for the 63-week period against 3p (52 weeks), in the 52 weeksk to March 19 1983.

Turnover of this manufacturer of "Marathon" underwear and outerwear, was £16.07m against 5p (12.01p) basic, with 14.57p (10.98p) fully diluted.

£12.49m. Operating profit at total of the last period reflect the satisfactory progress being made in all areas of the business, and they believe shareholders can look forward to a year of further progress in 1985.

There was an extraordinary debit of £30.000 (£150,000). Can look forward to a year of further progress in 1985.

They add that obtaining orders during the last period reflect the satisfactory progress being made in all areas of the business, and they believe shareholders can look forward to a year of further progress in 1985.

They add that obtaining orders during the last year has been less difficult than in tha previous profit margins has remained difficult.

£15.79m to £21.24m. The interim dividend is effectively held at 2p — taking into account the one-for-four scrip last year.

Order books of this USM com-

ELDORADO NUCLEAR LIMITED

In accordance with the provisions of the this, notice is hereby given that for the ried from 28 August 1984 to 28 February

28 August, 1984 THE CHASE MANHATTAN BASK ILA. LONDON, AGENT BANK.

US\$160,000.000 Floating Rate Notes due 1989

period from 28 August 1984 to 28 February 1985 the Notes will carry an interest rate of 1274 a % per amount. The interest payable on the values interest payable on the values 1985 and be USS311.48 per 55,000 Bearer Nete/95,000 principal amount in Registered form.

1985.
After tax of £32,000 (£70,000) and dividends of £76,000 (same), retained profits fall from £181,000 to £11,000. Earnings per 50p share were shown as down from 6.8p to 2.3p.

Reed Intl.

Clearance has been given by the Department of Trade and Industry for tha transfer to Business Press International, o subsidiary of Reed International of the newspapers making up the News Shopper series published by Mega Newspapers.

F.T. Share Information The following securities bave been added to the FT Share Information Service:

Berkeley Group (Section: Pro-Berkeley Group (Section: Property)
Bush Radio (Electricals)
Capital and Counties Electry
UnsLn 1939-2004 (Property)
DDT Group (Electricals)
Gee/Rosen Organisation
(Drapery and Stores)
New Zealand 11 pc 2014 (Interpret)
Banks and Overseas Govarnment Sterling Issues)

meot Sterling Issues)
Pacific Sales Organisation (Industrials) Spectrum Group (Leisure) Sioddard (Hidgs) 10pcCumCnv RdPf (Textiles).

BOARD MEETINGS

TODAY
Interims:—American Trust, II
Situmaetic, Edinburgh Fund Maneg
Firm Scottleh American Trust,
lunkels Restaurants, Hongkong
Shanghei Banking, International Th
Son, Taylor Woodrow
Finals:—Associated Dairies, He
mat, Joniar, Sangam.
FUTURE DATES
Interims:—

Interims:—
AC Cers
Beneana Criege
Brooke Orner Bureau
Ibstock Johnsen
Inchoepe
London United Invastments
Macallen-Glenlivet Sept 8 Sept 4 Oct 8 Sept 27 Sept 12 Sept 14 Aug 31 Sept 4 Molynx
Nurdin and Paecock
Paninsular & Oriental Steam
Nevigation ompco
Gry Pickering
Gry Pickering
Gry Pickering
Gry Hotel
Geztanine Capitel
Glytschnic Marina
Lagian Property Trust
Stewart and Wight
Amandad
Amandad
Amandad
Amandad

> LADBROKE INDEX Based on FT Index 835-839 (+6) Tel: 01-493 5261

Hongkong Rubber's winding up details

Commercial Union's loss making U.S. insurance operations bave suffered another sethack with the decision of A. M. Best, the leading U.S. insurance rating agency, to lower the rating on CU's U.S. property and casualty operations from A to B.

The new rating, which is still categorised as "very good" by the new Jersey-based rating agency, follows heavy losses by CU in the U.S. and its recent announcement of a major cutback in its operations there. back in its operations there.

A. M. Best is an independent

A. M. Best is an independent agency which publishes an annual rating of U.S. insurance companies, amongst other things. The annual report, which grades insurance companies from A+ and A, both regarded as excellent, to B, BC, and C, is widely followed by the losurance industry and is often used as a guids to directing new business. as a result of offers to share-bolders by Harrison Malaysian amount of M\$40,000 is due from Plantations Berhard, producing them.

New Throgmorton Trust (1983)—London and Manchester Group bas increased its bolding to 2,210,000 shares (5,64 per

cent).

Smallar Companies International Trust—Churches and Universities Widows and Orphans Fund bas sold 120,000 shares.

The Ex-Lands—Following a purchasa of 755,000 shares the Kwahu Company is now interested in 1,962,330 shares (43,99 per cent). The shares were acquired from Western Selection whose interest in the shares of Ex-Lands has been reduced to nil.

SHARE STAKES

Property Security Investment
Trust—Sir Hugh Cubitt, a director, bas ceased to be interested in 8,041 Ordinary shares. His total interests are now in 35,878
Ordinary and 1,098 Preference shares.

Ballie Gifford Technology—The Bank of Scotland 1975 Pension Scheme has acquired 50,000

W. A. Tyzack — Atco Western Investments has acquired a furroughly shares and now holds.

shares.

Ballie Gifford Technology—
The Bank of Scotland 1975 Pension Scheme has acquired 50,000 ordinary shares and now holds \$00,000 (7.27 per cent).

Daejan Holdings—Mr B. S. E. Freshwater has sold, as administrator of the estate of his late father, 15,000 ordinary shares in which he had non-beneficial interest.

Manton Bros.—Mr S. Gould, a

W. A. Tyzack — Atco Western Investments has acquired a further 90,000 ordinary shares and now holds 1,210,000 ordinary shares (24.2 per cent).

Bankers' Investment Trust — the London and Manchester Group, following 8 recent purchase, now holds 5,648,018 shares (7.29 per cent).

Allied Colloids Group — The Legal and General Assurance Society has reduced its holding to below 5 per cent.

London Prudential Investment Trust — the London and Manchester group has bought 2 further 10,000 shares and now holds 772,500 shares (12.875 per cent). Munton Bros.—Mr S. Gould, a Minuton Bros.—Mr S. Gould, a director, bas sold 228,000 ordinary shares at 41p and now bolds 227,358 ordinary.

Warner Estate Holdings—Mr J. G. Day, a director, has disposed of his interest in 12,535 ordinary shares to the beneficiary of a trust for no consideration.

PRE-TAX profits at Exeter Building and Construction Group fell from £327,000 to £115,000 in the six months to June 30 1884. Mr D. Stoneman, tha chairman, describes the result as "dis-sprogneting" beneficiary of a trust for no consideration.

Marks and Spencer—Lord Sieff of Brimpton, o director, has disposed of 25,000 ordinary shares.

J. H. Fenner — Scrimgeour, Kemp-Gee and Co purchased 140,000 ordinary shares at 141p on behalf of Hill Samuel.

Stackholders Far East Invest-

on behalf of Hill Samuel.
Stockholders Far East Investments — The Halifax Building Society bas purchased 100,000 ordinary shares and now bolds 450,000 shares (5.625 per cent).

A. Jenes and Son—As a result of recent transfers the following companies now hold the following companies now hold the following companies of the same of the companies.

the group's companies, but pricing remains keen and it still seeks some additional profitable work to maintain the level of activity.

Mr Stoneman says sales of new bousing give more encouragement at present and these are expected to continne throughout the rest of the year.

A number of larger developments are in progress, bot these will not contributs materially to profit in 1984.

Casb balances and investments have been sustained and

Mr Stoneman says sales of new bousing give more encouragement at present and these are expected to continue throughout the rest of the year.

A number of larger developments are in progress, but these will not contribute materially to profit in 1984.

Casb balances and investments have been sustained and resources are available for its planned activity. Mr Stoneman says he cannot forecast with certainty as to how the economic sentiment and recent Government steps to restrict expenditure will affect the potential for 1985.

Method and 1987 Mittal Mittal Insurance Pension Fund Trust and Insurance Pension Fund Trust A. A. B. Nicole, a director, has purchased 10,000 ordinary states Insura

a director, bas acquired 50,000 Fund-Stake — The following shares and now holds 201,000 sharebolders bold more than 5 shares. Healso has 8 beneficial per cent of the participating interest in 2,000 shares registered in the name of his issue as at August 16 1984: B. S.

daughter.

Helical Bar — R. A. Thomas, 8
director, has purchased 10,000
sbares of 25p. S. J. Murphy, a
director, has purchased 10,000

redeemable preference shares in issue as at August 16 1954: B. S. Stevenson 5.99 per cent; C. H. Taylor 5.31 per cent.

Harvey and Thompson—Following a recent disposal Matherwood no longer has an interest in the equity.

Anglo-Indonesian Corporation—International Investment Trust Company of Jersey is now interested in 726,500 ordinary shares (12.25 per cent). director, has purchased 10,000 shares at 27p.

Highcroft Investment Trust—

J. H. Robertson, a director, has disposed of, by gifts to his grand-children, 6,000 ordinary sbares.

Wight Collins Rutherford & Scott — the following directors havesold share:—A. D. Rutherford has sold 40,000 and now bolds 406,100; R. Collins 40,000 and now bolds 445,100; P. J. ordinary shares representing Scott 40,000 and now bolds

Matherwood no longer has an interest in the equity.

Aglo-ladonesian Corporation—International Investmant Trust Company of Jersey is now interested in 725,500 ordinary shares (12.25 per cent).

Property and Reversionary Investments—Water Authorities Superannuation Fund has a beneficial interest in 1,385,000 and now bolds

In the balf year ended June 30 1984 Parambe has improved its net profit from £31,340 to £36,296, giving earnings of 0.8 p (0.69p) per share. The asset value was shown at 42.9p, compared with 38.2p st December 31 and 35.1p at end June 1983.

COMPANY NEWS IN BRIEF

1984 Paramhe has improved its net profit from £31,340 to £36,396, giving earnings of 0.8 p (0.69p) per share. The asset value was shown at 42.9p, compared with 38.2p st December 31 and 35.1p at end June 1983.

Gross investment income came to £40,376 (£35,667), income from securities dealing to £22,003 (£32,134) and from works of art dealing £21,583 (£12,156). Tax charge was £15,799 (£18,518).

This advertisement is issued in compliance with the requirements of the Council of The Stock Exchange. It does not constitute an invitation to any person to subscribe for or purchase any Warrants.

Foreign&Colonial

F. & C. PACIFIC

INVESTMENT TRUST

PLC

Issue to Shareholders

of Warrants to subscribe for

5,304,311 Ordinary Shares of 25p each

The Council of The Stock Exchange has

admitted the above mentioned Warrants to the

Particulars of the Warrants are available in the

Extel Statistical Services and copies of such particulars may be obtained during normal business hours on any weekday (excluding Saturdays) up to and including 11th September

> Grenfell & Colegrave 55/61 Moorgate London EC2R 6DR

> > 28tb August 1984

The interim dividend is 0.4p (0.35p).

THE LIQUIDATORS of Hong-koog (Selangor) state tha funds available at the date of the company's liquidation, after providing for outstanding tax and itsilities, a second distribution in the liquiration of 15 per share was made on July 7 amounting to 14.5m.

During the year the companies investments in Killingball Tin (Malaysia) Berhad and H and C Laytex Berhad, were scid realising fi.14m and 146,252 respectively, both being subject to UK corporation tax on the chargeable gains arising yet to be agreed with the Inland Revenue.

Investments in Castlefield (Kiang) Rubber Estate and Edensor Rubber Estate were realised early in tha current year as a result of offers to share-bolders by Harrison Malaysian available from M340.000 is due from

EQUITIES

FIXED INTEREST STOCKS

								<u>.</u>			··.
	price	d up	test euen eko	19	84		Stock			Deleg Tob 8	+0
'	6	₹4	35.0	High	Low	<u></u>			3.4	94	_
	\$100 99,161 198,152		5/9 10/9	100% 100 151 ₂ 96	101 ₂ 92p 1994 991 ₈ 100 101 95	Cambridge Derwent V Intl. Bk. fo Marley 11' Nationwid Portsmout TR Energy	nds 1212 U.s. Water 13% Alley 10% Car Recon. & Car Recon. University 13% Con. Uni	Red. II: Im. Red ey. 1143 79 1/86 7/8/85 Red. D a. Ln. '9 2 Una. (b. 2014 Ln. 2095 eb. 1994 7-2001 Cav. Deb	281a 1007s 100 1254 96 50ppn	4 4 14
٠			, ,			I	Y	٠			

"RIGHTS" OFFERS

lesve	soust id up	Latest Renunc.	196	4	Stock		+
price	₹2	date	Nigh	Low		용호	_
1135 A85.7 11 85 235 110 4 200 90 A84 570 193 375	HO NIII F.P. F.P. HIII A42 F.P. NIII A42 F.P.	20/9 91/9 21/9 21/9 24/9 26/9 7/11 28/9 7/9 10/8 12/10 7/9	51 ₂ pm 80pm 121 ₂ 100 510 53pm 41 ₃ 290pm 25pm 25pm 443 73pm 445	40pm 11 88 257 30pm 4pm 257pm 15pm 19pm 579 60pm	#Applied Botanics Units	11 90 309 30pm 4pm 273pm 20pm 295pm 430 78pm	#+: +: +: F

PENDING DIVIDENDS

Dates when some of the more important company dividend following table. The dates shown are those of last year's amouncements except where the forthcoming board meetings (indicated thus*) have been officially notified. Dividends to be declared will not necessarily be st the amounts in the column headed.

HOUSE W

WHI BEACH P.

Mark 12012, CAMP

Application for a second

GETHAW

MO PROCESSIO

HONE CAPAC

IS COMPATTA

State of

nnouncement las	t year."		
Date	Announce		Annoones-
row	Final pil *	InvergordenSept 12	Interim 1.5
RIO AMONICAN :	Diniolina cm	Bangon Sept 4	Interim 4.5
Gold lovSept 1	Interire 600c	*LadbrokeApp 30	Interim 4.7
PortsSept 15	Interim 3	Laing (J.) Supt 28	Interim 1.25
*001818d		Laing (J.)Sept 28	interim 2.2
DairiesAug 26	Final 1,75	Laporte 1811-64.5801 21	Interim 4.0
romSept 28	Interim oil	Legal and GeneralSept 14	Interire due
ProductsSept 8	Interim 0.5	GeneralSept 14	Interim 6
T Industs Sept 21	Interim 0.375	London Merchant	
Sept 0	Interim 0.375 Interim 7.0 Interim 8	SecsSept 13	Finel 1.05
T IndustsSept 21 Sept 0 RSept 13	Interior 8	Menzies (J.)Sept 22	Interim 2.0
nk of	Interim 3.4	London Merchant SecsSept 13 Menzies (J.)Sept 22 Mills and AllenSept 28	Finel 9.0
Scotland5ept 20	Interim 11.5	Morgen	
matt Davs Sept 20	Finel 5.31	CrucibleSept 1	2.0 minetal
(Arthur)Oct 4	Final 2.85	NEISept 28	Interim 1.85
CGSept 5	Interim 3.5	NEI	nterim 4
Oker	Interim 1.65	PearsonSept 12	Interim 5
McConnellSept 15	Interim 3.5	FinancialSept 6	
oweterSept 18	Interim 0.6	PrudentialSept 10	Interim 0.5
tiah	Internation of the	RMC Sept 21	Interior 4.1
Aerospece,Sept 10	Interim 8.0	RMCSept 21	Internet 4/1
xton		JeffriesSept 17	Interim 5.0
xton EstateSept 18	Interior 1.9	RaybeckAug 25	Final 0.26
MAIL GOABLI		Rockitt and	
Kent. Sept 7	Interior 1	. ColmanSept 5	finerin 4.55
rmeh OliOapt 14	Interim 3.5	ReutersSept 13	interim dos
nning (W.) Sept 12 arterheilSept 22	Interim 0.5	Rio Tinto-	
arterhellSapi 22	Final 0.3	Zinc 0spt 21	Interim 0.0
srterhouse	1	Rowntree	
GroupSept 1 mb English	Interim 2.025	MackintoshSept 22 Rugby Portland	interim 3.2
Otorsa:Sept 27	Interim 1,49	-ComentOct 3	Interim 2.7
nsolidated Gold	IIIIIIIII 2270	SchrodemSept 8	Interior C 44
FisidsSept 18	Final 16	SeemOct 4	Interior 0.44
ne Plante Aug 29	Final 5 sen	SedgwickSept 8	Interim 0.44 Interim 0.7 Interim 2.75
okana Sont S	Interim 3.7	*Sime DarbySept 1	Fiasi 6.8
steinSept 13 da IntSept 7 rrysOct 8	Interim 3.7 Interim 5.5	*Sicuph	
da int5ept 7	Interim 8	EstatesAug 29	laterim 1.52
rrysOct 8	Interim 1.4	SuperdmgSept 23	Interim-1.4
G	Interim 3.0	SteatleySept 22	laterim 4_0
getyBapt 20	Finsi 11,0 Interim 2.2	Stewart	
benhamsOct 7	Interim 1.82	WrightsonSept 7	Interim 5.85
niopSept 8	Interim pil	Sun AlliancaSapt 5	Interim 2.2 Interim 3.6
Sept 8	Interim 1.65	Taylor	Infoliat 9'0
item		WoodrowAug 28	Interim 5.5
ProduceSept 28	Interim 1.5	Tozer Kamaley &	1.401111 0.11
one	Interior 6.0	MiliboumAug 1	Interim nii
at Hidge Aug 30	Flaai 1.5	Travis and	-
emansuct 3	Interior 1.9	ArnoldSept 26	Interim 1.68
ttanSept 29	interim mi	Turner and	
ESept 5	Interim 7.75	NewallSept 13.	Interim 0.25
mbm LifeOct 5	Interim 4.7	"Utd Biscuits Sept 12	Interim 2,7
wleyAug 24	interim 0.65	*United	
CeramicSept 8	Interim 2.5	NewspapersSept 25 VicksmSept 22	interim 5
ge & HittOct 5	Interim 4.0	WmrAug 28	Interim 0.37
ga & HillOct 5 ns CharmSspt 15	Interim 0.75	Willis FaborSept 10	Interite 0
ngkong and		William	
ısııghsi 8kAug 28	Interim due	(Geo.)Sep1 29	Interim 0.85
use of		Woolworth8spt 14	Interim 2
Frant8802 29	lozarim 2.5		

						P/	
Caolmliseu			· Change	Gross	Ylald		Fully
5000.°	Company	Prior	On week	div.(p) %	Actual	taxed
6,029	Asa. Brit. Ind. Ord	137	+ 1	2.3	4.8	8.0	10.5
	Ass. Brit. Ind. CULS	142	· <u> </u>	10.0	7.0	=	
3,184	Airsprung Group	55		g.4	11.5		
925	Armitage & Rhodes	37		27		8.0	7.3
38,649	Bardon Hill	124	- 2	2.9	7.8	4.6	7.7
2,365	Carly Tanks also les			3.4		12.5	20.8
	Stray Technologies	43	– 2	3.8	8.1	5.0	7.2
2,107	CCL Ordinary	177	_	12.0	8.8	_	
	CCL 11pc Conv. Pref.	119	_	15.7	10.2	=	=
3,205	Carborundum Abrasives	535	. + 5	5.7	1.1		
1,555	Cindico Group	88	· · <u>-</u>	<u></u>	<u></u>	. =	
5,156	Deboreh Services	68	_				57.4
15,149	Frank Horsell	236	+ 2	6.0	9.0	35.3	67.4
,	Frank Horsell Pr.Ord.87	205	I 4.	_	_	9.4	12.4
3,612	Frederick Parker		+ 1	9.0	4.7	8.3	10,8
645	Coorse Diele	25	i	4.3	17.2	<u> </u>	. —
	George Blak	35	_	_		8.3	
1,866	Ind. Precision Castings	48	1	7.3	15.9	12.7	15.9
15,303	lais Ind. Services	200	– s	15.0	7.6		
5,688	Jackson Graup	110		4.9			- 4-5
31,882	Jamas Ourrough	231	+ 4		4.5		
2,967	Jemes Gurrough 9pc Pf.	88	+ 7	13.7	5.5	8.2	8.2
3,080	Lingsephone Ord	145	T 1	125	10.0		· · = ·
	Lingusphone 10.5pc Pf.	170	_		_		
11,953	Minibouse Holding MV	96		15.0	16.6	— .	·
541	willingsee Unichid MA	439		3.8	0.9	31.6	34.6
2,280	Robert Jenkins	53	2	20.0	37.7	9.2	4.5
	Scruttone " A "	48	- 1	5.7	11.5	25.3	78
2,099	Tordey & Cerlisle	88	· <u>-</u> -	J.,	11.0	47.3	18.5
1,983	Travisa Holdings	433				-32	1479
3,297	Unilook Holdings	31	-	51	rehead.	10.2	
11,219	Watter Alexander	â		1.3	8.2	· 10.2.	. 14.7
2 ADA	MANUAL MAYOUGEL	95	+ 1	6.8	7.7	- 8:7	. 10.2

Granville & Co. Limited

Telephone 01-621 1212 Over-the-Counter Market

						P/1	E
Caolmilestn.			Change	Gross	Ylaid		Fulk
£0000,₽	Company	Price	Ou Mack	div.(a	7.	Actual	texa
6,029	Asa. Brit. Ind. Ord	737	+ 1	2.3	4.8	8.0	10.9
	Ass. Brit. Ind. CULS	142	_	10.0	7.0	_	
3,184	Airsprung Group	55		8.4	11.5	8.0	7.3
925	Armitage & Rhodes	37		2.9	7.8	4.6	
38,649		124	- 2	3.4	2.7		7.7
2,365	Sray Technologies	43	- ž	3.8	8.í	12.5	20.8
	CCL Ordinary	177		12.0	8.8	5.0	7.2
	CCL 11pc Conv. Pref.	118	_	15.7		_	_
3,205	Carborundum Abrasives	535			10.2	_	
	Cindico Group	88	. + 5	5.7	1.1	. —	1111
5,156	Deboreh Services	68	_				
	Frank Horsell	236	·-	6.0	9.0	35.3	57.4
,	Frank Horsell Pr.Ord.87	206	+ 2	_	_	9.4	12.4
3,612	Frederick Parker		+ 1	9.0	4.7	8.3	.10,8
646	George Blak	2 5	1	4.3	17.2	_	· -
1,866	ind Devices Contract		_	_	_	<u>··</u>	Party.
15,303	Ind. Precision Castings		1	7.3	15.9	12.7	16.5
5,588	isis ind. Services	200	– 5	15.0	7.5		
31,862	Jackson Group	110		4.9	4.5	5.1	9.5
2.967	Jamas Ourrough		+ 4	13.7	5.5	8.2	8.2
	Jemes Gurrough Spc Pf.	88	+ 1	12.5	10.0		
3,080	Lingsephone Ord	145	_	_		್ಫಾ	· · =
44 000	Lingusphone 10.5pc Pl.	96	_	15.0	15.6		
11,953	Winhouse Holding NV	439	+4	3.8	6.0	31.6	-94.6
541	Robert Jenkins	53	2	20.0	37.7	82	4,3
2,280	Scruttone A	48	- 1	8.7	11.5		. 8.9
2,099	Tordey & Certisle	82		5.7		47.3	- 0.3
1,983	Travian Holdman	433				. 32	. 10.0
3,297	nwicor Holdings	31		1.3		10.2	
11,219	WOITER Alexander	90	+ 1	2.0	0.5		-
8,484	W. S. Yeetee	235	<u> </u>	5.0	- 44	5.7 5.6	144
		ليتند	- 2	17.4	7.5	Thurs	-1112

ther information from the Treasurer Investors in Industry erico Rood, Loodon SEI EXP (019-928 7822 Est. 2367). "Bart of England, q/c Investors in Industry Group pic."

Today's Rate 1134%

3i Term Deposits

Deposits of £1,000-£50,000 accepted for fixed terms of 3-10 years, Interest paid half-yearly, Rates for deposits received not later than 7-9.84 are fixed for the

Terms (years) 3 4 5 6 7 8 9 10 Interest % 11% 11% 11% 11% 11% 11% 11% 11% From 6th April 1985, interest will be paid after deduction of tax at the

Group half-year report

SKF Group profit for the first six months of 1984 was 524 million Swedish kronor (Skr 270m) before exchange differences. Sales were 12% higher than for the same 1983 period. Jan/June 1984 Jan/June 1983

Sales (MSkr)	9,022	8,051
Operating income before depreciation (MSkr)	951	705
Income before exchange differences (MSkr)	524	270

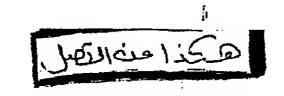
Average number of employees at work	43,215	42,293
Capital expenditure (MSkr)	242	280
Income before exchange differences (MSkr)	524	270
depreciation (MSkr)	951	705

The half-year was marked by continued growth in volume sales and lower net financial costs. The total cost of goods sold was reduced in proportion to sales.

Rolling bearing income improved 134 million to 380 million kronor, with sales 7% up on the previous first half-year SKF Steel, with a 58 million kronor profit, recovered from its 31 million kronor deficit of 1983. Sector sales rose 25%. Cutting tool turnover rose 16%, profits advancing to 53 million (Skr 23m). Income from other products was constant at 33 million kronor in spite of higher total sales.

Earnings per Parent Company share went up to 9.95 kronor from 4.95 kronor for the corresponding 1983 period. Aktiebolaget SKF, S-415 50 Göteborg, Sweden

FINANCIAL TIMES STOCK INDICES										
	Aug. 24	Aug. 23	Aug. 22	Aug. 91	Aug. 20	Aug. 17	High 15	84 Low	Stree Co High	mpilatn Low
Government Secs.	79.75	79,89	80,17	80.10	79,80	72,95	83,77	75,79	197,4	49.18
Fixed Interest	83.50	88,29	83,45	83,34	83,19	88,24	27.48	80,45	150,4	50.53
Indiretrial Ord	856,8	655,2	841,6	839.2	833,2	838,5	9,320	755,0	8,587	49,4
Gold Mines	570,9	578.4	570,2	562,8	873.6	578,8	711.7	485,7	784.7	43,5
FT-Act. All-Share	013.11	\$10,15	515,91	510.64	567,56	508.55	530.71	464,84	636,71	: 61.93
FT-SE 100	1087,3	1089.2	1090,2	1082,4	1074.4	1078.0	1141.5	986.9	1141.0	986,9 4



Official List.

1984 from:



Aurast 28 1084

A STATE OF THE STA

THE COLUMN TO TH

 $x \in \mathcal{C}_{k}(T)$

...

DENES

£35m orders for Aberdeen Construction

ABERDEEN CONSTRUCTION of GROUP reports the award of for £2.1m to build 116 houses at contracts worth £35m to subsidiaries. Largest single contract, valued at almost £7m, has been awarded to Reema Construction of meritage guarters at Howe Barracks, Canterbury, for the PSA. Reema has also been awarded a contract at Andover for the Total Oil Marine valued at £3.5m. Reema has also been awarded housing contracts by Aberdeen the Test Valley Council, value of £1.5m. Other contracts the Test Valley Council, value of £1.5m. Other contracts the Salisbury include bank premises for the for £1.4m and for £2.1m to build 116 houses at Clydesdale Bank, and advance halling factory extensions to the Mallaig Harbour Authority. Other contracts and the Scottish Development and the Scottish Development and the Scottish Development are the Shell/Esso gas started work on a grade started work on a grade started work on a grade at £1.2m. Total Oil Marine valued at £3.5m. The work is also been awarded a housing contracts by Aberdeen District Council with a combined the Test Valley Council, value of £1.5m. Other contracts Highlands and Islands Develop-

Design and build for Shepherd

Five design and build contracts ampton is a £2.3m contract for Five design and build contracts amount is a 22.3m contract for with a total value over £7.5m a warehouse and office development for Regard's Papers. Work on site commences in September for completion in August 1985.

projects are in the industrial and commercial sectors and are located in Yorkshire. Warwickshire, Cambridgeshire and Suffolk, Largest is for Rowntree Mackintoch for erection of a production facility in York. The development has been worth almost £2.5m, the contract is scheduled for completion in April 1985. A £1.2m refurbishment contract has been secured at the Huddersfield offices of brewers Bass North, involving demolition of existing buildings, refurbishment of depot and office buildings and construction of a link building, for completion in June 1985. In North-

Contractors have been awarded contracts worth film. In White-baven repairs to 52 bomes for Copeland Borough Council in a £152,730 contract, along with sewer replacements at Coach Road for North West Water Authority and construction of garages for British Nuclear Fuels in contracts worth £76,800. A recreation pavilion, also at Coach Road, will be built for the National Coal Board in a £111,646 contract. For Dumfries and Galloway Regional Council work on Sandyford Bridge and approaches for £197,432 and, at Egremont, workshop units worth £195,311 will be constructed for Rnglish Industrial Estates Corportation. In a £224,047 cootract, along with steel deck roofing and approaches for £197,432 and, at Egremont, workshop units worth £195,311 will be constructed for Rnglish Industrial Estates Corportation. In a £224,047 cootract, along with steel deck roofing and approaches for £197,432 and, at Egremont, workshop units worth £195,311 will be constructed for Rnglish Industrial Estates Corportation. In a £224,047 cootract, along with steel deck roofing and approaches for £197,432 and, at Egremont, workshop units worth £195,311 will be constructed for Rnglish Industrial Estates Corportation. In a £224,047 cootract, along with steel deck roofing and content by Environmental Road. Mechanical services are being carried out by ENVIRONMENTAL INSTALLATIONS (IPSWICH) and electrical by HOLLATIONS (IPSWICH) and electri

RODIME has signed a contract with the data systems division of Convergent Technologies, Santa Clara, California, that is estimated to be worth over \$5.5m (£4.2m) over an 18 month period Rodine will supply model 202E, a high performance 5.25" in Winchester disk drive with 20 Megabytes of formatted storage. Convergent Technologies will incorporate the drive in its Mini-Two contracts, together worth over £1m, for altering and fitting out office buildings have been awarded to MYTON — part of the Taylor Woodrow Group. The larger, worth £680,000, involves forming and fitting out new offices, a kitchen, restaurant and lounge at the offices of Access in Priory Road, Sonthend. The work is scheduled for completion in November, 1884. The other contract, valued at £370,000, bas been awarded by Svenska International and is for tenants alternational and is for tenants alternational. incorporate the drive in its Mini-Frame product line, a Unix-based minicomputer providing up to eight terminals.

a £600,000 order for the oew British Embassy io Saudi Arabia, which is being built in Riyadh and to replace the old one at Jeddah. Crittall, a been awarded by Svenska Intermeber of the Norcos group, in a supplying aluminium and steel windows and doors, together with sunbreakers and other ancillary components, and the glass and glazing materials, work is due for completion next. A small privately owned British yard has won a £2m order to build a patrol craft for Bahrain.

SOUTER, Cowes, Isle of Wight, alogarder and Alexander Services 25cm alogarder and Alexand the glass and glazing materials. work is due for completion next

WEEK'S FINANCIAL DIARY

The following is a record of the principal business and financial engagements during the week. The board meetings ore mainly for the purpose of considering dividends and official indications are not elways available whether dividends concerned are interims or finals. The sub-divisions shown below are based mainly on last year's timetable.

Liverpool Street EC. 11.45
Davemont Chievear, Allen House, Newmork Street (Allen House, Newmork Street (Allen House, Newmork Street, Caroline Bank, 26, Austin Friars, EC. 12.00 Rossell (Alexander), Royal Scottich Automobile Club, 11, 8 lythreswood Spuare, Gaegow, 12.88
Shaw Caroba Post House, Oscert 12.00 French, Socieme's Inna, EC, 3.08
Stanka, MESTINGS—
Stanka, MESTINGS—
Stanka, MESTINGS—
Stanka, Caroba Post House, Oscert 12.00 Inv. Frop New Darlen Oil Tst
Polytechnic Marine
Zangia, Cooper Inv.
Alexanders Nidos. BOARO MEETINGS Pengkalan Thomas Nadaswide Transport Dividend & Interest Payments— Amdahi Sets Hughes Tool 12cts Lennons 0.75p Lengons 0.759
TODAY
COMPANY MEETINGSMoorgate Inv Tst, 1 Brever's Green,
Succinenaum Gate, Sw. 2.30
Swan (Jonn), New Mart Roed, Gorgie,
Edinburgh, 4.00
BOARD MEETINGSASSE Dairies
Asset Dairies
Asset Dairies
Janzar
Sangers

Janear Santa American Tat Golden Scottch Nitra Inv Tet
OVVIDEND & INTEREST PAYMENTS—
Allied Collicias 2.89
Allied Collicias 2.89
Allied Leather Inds 3.750
Ashgown Inv 1st Spc00 1985-90 20pc
Ashgown Inv 1st Spc00 1985-90 20pc
Ashgown Inv 1st Spc00 1985-90 Nts 1989
S3.83
Sankamerica 38cts
Sankamerica 38cts Bank, or Irreams rus new 538.83
Sankamerica 38cts
Sankamerica 38ct

"OLVIDEND A INTEREST PAYMENTS— Aaronie 1.39
Clona Overtess Hannes NV 13ocla 2008
6.50C
Cohen (A.) 8.80. Do A Non-Vis 6.80
Cullen's Stores 3.60. Do A Non-Vis 3.50
Decrinicite de Frence 12:pecciala 2008
(Res) 8bac Do 12:pecciala 2008
(Res) 8bac Do 12:pecciala 2008
(Res) 8bac Do 12:pecciala 2008
(Res) 8car 2.75p
Kiern-2.2e 49
Liverpool 13or 1985 6 apc
Lloyd (F.H.) 1.25p
Medon 29
Mercury Common Market 1st Ptg 39p
Monk [A.] 4.5p
Swan (John) 8.50
Swan (John) 8.50
Swan (John) 8.50 Alact Continental and indestrial Tst SptRedDh 1980-85 21pc Danae Inv Tst 2.73p Deniat Inv 100 Delmar 1.650 Derby Tet 3.162p Deny 73cLn (886-91 31cc Duport 1.75p Wan (John) 8.50
TOMORROW
COMPANY MEETINGS
Wington Motor, Chartere

Donn't 7ixLin (1886-91 31-nc Duport 1.75p
Ecclesiastical 130cDb Silpoc
Emportasa La Molleria 5A de CV Fito
Rate Nts 1988 \$571.81
Energy Finance and General Tet 0.71p
Evans of Leeds 1.75p
Foster 87p School 1.925p
Foster 87p School 1.925p
Foster 87p School 1.925p
Foster 97p School 1.925p
Evans of Leeds 1.92p
Evans of Leeds 1 2.00 FICDENKS PIACE, OIG JEWY, EC. Holles, Wingsor House, Southmoor Road, Wythershawe, Manchester, B.38 Jones (Edward), 2. Outen Anne's Gate Buildings, 1-2 Darmouth Street, SW, 19.08 BOARD MEETINGS— AMEC American led Anglo American led Babcock Intol Dewharst (I. J.) Refuge Assurance Slough Ests Stanley (A. G.) Wolf Grp

Stanley (A. b.,)
Weir Gry
Weilliams Midds INTEREST PAYMENTS—
Williams Midds INTEREST PAYMENTS—
JUVIDIND & INTEREST PAYMENTS—
Juvidin Jamesi Scott 1.2p
Jank Leuni (thit 3.5p
Jister (Alberti 3.5p
Jist Invicta Gilt Growth Fund Ptg Red Pf 258
JWT 36cts and Firth Brown 11pcLn 1993-98 Bristol Evening Post, Temple Win, Bristol, 12.00 Detmar, Manor Royal, Crawley, West Sussex, 19.00 Litham James), Leeside Wharf, Clapton, E. 2.30 2.30 2.30 Misland Inds. Royal Lancaster Hotel. Lancaster Terraco W. 12.00 London and Overseas Freighters. Eastle Sechange Chambers, 14-20, St. Mary Ase,

Notel. Lancaster Terraco W. NacouLondon ang Ovoreas Freighters. Bartic
izchange Chambers. 14-20. St. Mary Aue,
E. 11-00
Milbury, London Press Centre. New Street
Square. 4C. 11-00
NMC Invs. 28-35. City Road. 4C. 12-00
NMC Invs. 28-35. City Road. 4C. 12-00
NMC Invs. 28-35. City Road. 4C. 12-00
NMC Invs. 40-81
Rectory. 29. Martin Lane, EC.
11-30
NMC Invs. 40-81
Rectory. 29. Martin Lane, EC.
11-30
NMC Invs. 40-81
Rectory. 29. Martin Lane, EC.
11-30
NMC Invs. 40-81
NMC Invs. 4

1987-92 313kpc. On 9ocks 1999-2004 1937-92 304pc. On 9ockn 1999-2004 Alpot River Plate and Gen Ins Tit SpePfd 1.75p Rome Evans Inst 1.35p Rome Evans Inst 1.35p Rome Evans Inst 1.35p Rome Evans Inst 1.35p Special Plate 1.75p Scott and Roberton 7-pockn 1985-93 34pc Scottish Mortpage and Tit SpePf 1.75p Show Carpets 5.5pcPf 2.8p Spain Pip One Nts 1993 354-63 Steinberg 1.2p Swedon Pit Rafe Nts 1989 3543.06 TR Abstralla Inv Tit 7pcDo 1997-2002 31pc

21

TR Asstralla live Tst 70c00 1997-2002
Signot Tr City of Landon Tst Dtd 8 8750. Do Pid 200c [Non-Cum] 7p. Co Special Compile 200c [Non-Cum] 7p. Co Special Compile 200c [Non-Cum] 7p. Co Special Compile 200c [Non-Cum] 7p. Compile 200c [Non-

DIVIDIOND & INTEREST PAYMENTS—
DIVIDIOND & INTEREST PAYMENTS—
AMAX Sets
Ahaso Invs Dupc1sthttpDb 1987-92
3.375cc Set A Db 1986-91 Jupc
Active 7: pr. Set A Db 1986-91 Jupc
Active 7: pr. Set A Db 1986-93 Jpc
Db 1986-93 Jupc
Db 1986-93 Jupc
Db 1986-93 Jupc
Billish Rayopenare 5.73ccPt 2.625c
Brustellet Invs 7ocPt 2.45c
Boorlett Broweries Jupc
Brustellet Invs 7ocPt 2.45c
Boorlett Broweries Jupc
Brustellet Invs 7ocPt 2.45c
Boorlett Broweries Jupc
Brustellet Invs 7ocPt 2.45c
Brust PT 1.02.5p

Ford Mojor Aforts. Do Ber 2cts

Groce Social 194.4 2 line. Do Soc 1914

519 Fro Bet 1955 2 line. Do Soc 1914

519 Fro Bet 1955 - De Arigot

Richard Sive 1997 - De Arigot

Social 1978 - De Arigot

London Prudevillal Inv Tet 3001rdDb 1/200

Low and Bonar Geottett 2.1p

Do Georgel 7.1p

Mand General 7x Fund B.20

Metropolitan Water 3cc 8 1934-2003

1.100

Mand G General Tark Fund 82.5p
Mand G General Tark Fund 82.1p
Metropolitan Water Spc 8 1,934-2003
11/pc
Minas Genes Brazil Bilpc 30-yr Esh.889
Ln 2/pc
Politan Net Derough Council 11.25c/Red
2010 5-mc
Prolitan Net Derough Council 11.25c/Red
2010 5-mc
Prolitan Net Derough Span Nav SocMd
1.75m
Do 31-pc/Db Prop 14pc
Professor 1.75m
Products Apris Ming 19878-899 2-mc
Red app Scorntile Products Apris Ming Derovative Products
Salinda Corp 5-yrs/Red 1993-88 2-kpc
Salinda Corp 5-yrs/Red 1993-88 2-kpc
Salinda Corp 5-yrs/Red 1993-88 2-kpc
Salinda Corp 5-yrs/Red 1993-84 3-kpc
Solitan Sock 1992-94 3-kpc
Solitan Sock 1992-97 3-yrs/Sock 1992-98
Janc, Do 7-pc/Db 1992-97 3-pc
Unios Carbide 8-yrs/Sock 1992-98
Janc Bo 2007 Bill 1992-1992-98
Janc Carbide 8-yrs/Sock 1992-98
Jan Places Do SocPf Sets. Do SocPf Sets. Religious Control Sets. Religious Cond. Gends of Rt. Fund Pty Red Pty Red Pty Process Condens and Assoc Inv Tst 8.2n London and Assoc Inv Tst 8.2n London and Si. Lawrence Inv SocPf (.75p London and SocPf (.7

Wider OAP rail travel urged

THE Greater London Council is urging the Government to allow British Rail to accept a f2.5m offer from the council to extend the GLC's free travel scheme for the elderly to BR's services in the capital.

Mr Dave Wetzel, chairman of the GLC's transport committee, saidiff "We have bndgeted f2.25m in this year's GLC area for London's pentransport programme to give sioners. But this new scheme

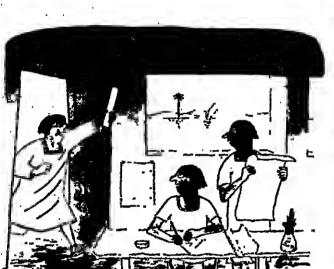
Henry Boot to build £25m Work in the Hong Kong container depot north for

As part of major expansion plans under way at the third largest container terminal in the world. Kwai Shung Container Terminal in the world. Row Kong, HENRY BOOT has been awarded a £25m contract to construct the super-structure of a container freight station. When completed this station. When completed this station will be the largest of its kind in the world capable of parking and the to be completed by the suffer to six for loading and unload. The client is Asia £5m contract for the flown project is Far East one to six for loading and unload.

Miller Buckley has £5m work

Miller Buckley Construction, worth over £1.5m. The compart of the Miller Buckley Group, has been awarded building will be added to Grest for the Miller Buckley Group, has been awarded building will be added to Grest for the Miller Buckley Group, has been awarded building will be added to Grest for contracts totalling nearly Mimms and Bristol, with work

miller Buckley Construction, worth over £1.5m. The compart of the Miller Buckley plexes will be added to Crest Group, has been awarded building contracts totalling nearly fism including over £1m for commencing on all sites towards orders won by its Stockton-based the end of September. At Newnorthern region. Half a million pounds of business has been atted fitting out a Presto Supersecured by Benbow, its interiors market at Byker for Argyle and shopfitting subsidiary, for various contracts throughout the and shopking shouldry. for stores (Properties), as a follow-various contracts throughout the up to constructing the supercountry. Miller Buckley is the up to constructing the supercountry. Miller Buckley is the up to constructing the supercountry. Miller Buckley is the completion. The latest 14 week Hotels, to provide leisure facilities at three hotels, in a contract pleted in November.



"We got it! We got the pyramid contract!"

English Estates has awarded a tion of a cew type of mechanised contract worth £500,000 to KASS letter sorting office in Ipswich.

Drawing by Chas. Addams: © 1984 The New Yorker Magazine, Inc.

Due for completion in Angust, for site development on phase

FAIRCLOUGH BUILDING has

portation. In a £224,047 cootract, a low level water storage tank will be built at Selkirk for the Borders Regional Council and, at Cockermouth, £32,756 will be

spent by Cumbria County Council for alterations to the

Grammar School and Derwent

CRITTALL WINDOWS has won

engineers.

U.K. Food Distributor ila pleese to be held in strictest

confidence to Chairman Box G10008, Financial Times 10 Cennon Street, London EC4P 4BY

INVESTOR

wants to purchase Plastics Moulding company with factory working in G.R.P. Ample funds and existing jobs FORWARDING COMPANY WANTED secured. Wrks Box G10014, Financial Times shed freight forwarder with

companies involved in transport distribution, road haulage, plant hire. Please reply to investor. All replies will be acknowledged. Write Box 69994, Financiel Times 10 Cannon Street, London EC4P 4BY

U.K. Company

has funds available to purchase

Contracts & Tenders

Registration of Interest

STUDY

of need for and means of accommodating large ships for export coal at NSW ports (AUSTRALIA)

The NSW Coal Association and the Maritime Services Board of NSW are seeking registration of interest from suitably qualified consulting organisations to undertake a major study of the future need for and means of dating large ships for export coal at NSW ports. The study is an extensive investigation of the economics of the use of large ships in the NSW export coal trade and the technological aspects of accommodeting large ships at NSW ports.

Organisations wishing to participate in the study must demonstrate their ability to undertake the necessary detailed assessment of the transport economics factors and the technological and engineering factors affecting the use of large ships in the NSW export coal trade. Registration of interest may be made and study terms of reference obtained by writing to:

> Mr. W. A. Bennett Secretary, Transportation Committee NSW Coal Association P.O. Box Q339, Queen Victoria Building SYDNEY, NSW 2000, AUSTRALIA phone: (82) 29 7202

> > PREMICHAELS

LEEDS AND BRADFORD AIRPORT JOINT COMMITTEE

Applications are invited from suitably experienced organisations wishing to be considered for the operation of a new Duty Free wishing to be considered for the operation of a new Duty Free Shop concession, to be opened early next year in the Passengar Terminal extension at the rapidly developing Leeds Brudford Airport. Written applications should be subrefitted to the Director of Industry & Estates, Leeds City Council, Headrow Buildings, 44 The Headrow, Loeds L51, by 17th September 1984 for the attention of Mr N Ellaby.

NEW DUTY FREE SHOP

Businesses Wanted

HOUSEWARES COMPANY REQUIRED

Contact Peter Cartwright 0384 66304

FREIGHT

size of company, tumover required range 23m to E20m with up to E4m available for equity purchase. All replies treated in suicase. Write Box G10017, Financial Times 10 Cannon Street, London EC4F, 48Y

Company Notices

TENDERS FOR

GREATER LONDON BILLS

CORTON BEACH P.L.C.

We are a rapidly expanding group of companies involved in food Manufacturing and distribution: now searching for a suitable acquisition. We particularly seek Companies

with a minimum net profit in excess of £109,000 per annum and capable of further develop-

Geographical location is not important and existing Management would be recained. All replies will be treated in the strictest confidence.

Please reply to: Mr. M. Keen, Chairman CORTON BEACH PLC on House, 147a Bedford Southport PRE 4HR

WANTED

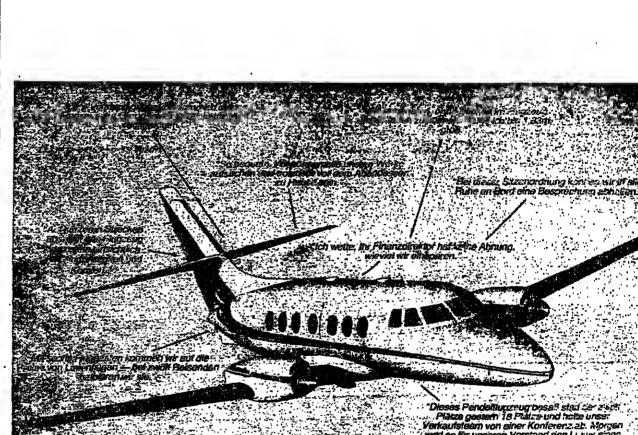
PHOTO PROCESSING: WE NEED MORE CAPACITY we are short of processing capacity.
Any photo processing taboratory
that is short of business ar cash
for expansion please write to:
Box G10039, Financial Times
10 Cannon Street, London EC4P 48Y

UK COMPANY thes to sequire established proble business in industrial Sefery or fits Membranance flaid manufacturer or distributor in gits with a summover between 5 million and 25 million.

Clubs

Art Galleries

J. E. G. CROCKPORD



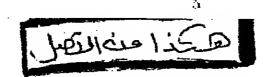
tock scottish Apri Inda

Dieses Pendellingzeug beseß stad zer z est Platze gestem 18 Platze und holte unser Verkaufsteam von einer Konferenz ab. Morgen wild es für unseren Vorstand den Luxus einer Flugzeugs mit neun Plätzen bielen. Mabeji Sie gehört, was manisieh tilbig sleistream 31 erzähit.

Series Se sich debrugern St.an.

Series Se sich des Flugzeug an Eber das alle Weit spricht. BRITISH AEROSPACE

JETSTREAM 31



-		· · · · · · · · · · · · · · · · · · ·					- · · · · · · · · · · · · · · · · · · ·			
A 11: 1151 28 1981	73 1	1 000000	adam Assaut 00 1004					•		23
1	Liberty Life Assuran	ce Co L2d i 05-440 8210 d Remnant & Co.	Sday August 28 1984 National Provident Institution 46, Gracethurth St. ECJP 3 MM. 01-623 420 Manager	INSUI	RANCE.	OVERSEA	S & MONEY	FUNDS	Queens Hise, Don Rd, St Heller 0534-71460	Strengthold Management Limited 0 P 0 Bon 315, 51 Heler, Jersey 0534-71460 0 Commodel Lust
Control of State Control of the	Glat Chip 19 First Vield 18 Guaranteed Shry 31 Guaranteed Shry 16 International 24 Property 19 Pagette 19		Overson Eq. 179.4 189.9 0.1 American 154 179.4 149.2 Far End 16.4 178.4 40.7 Property 16.1 16.2 Floes et 154.5 16.1 Indiana Gilt 97.0 102.2 Depost 211.3 117.2	Save & Prosper Group 28, Western Rd, Rondord RM1 3LB. 970	S-66966 Target Life Asset	rance Co. Ltd. CJ ouse Raad, Aylenbury, Sucks. 16	RL levestments (fold) Ltd St Georges Street, Danglas, 1944. 86-34 2023	Grindley Hondersen Mogt Ltd., 1 PO Box 010 St Meter, Jersey. 0534 74248	Inst Current St. 121.1486	Surinvest (Jersey) Ltd. 4, Wil St, Douglan, Use of Man. 0624 29441 Capuse Treat
	Special Sits 21. Int Correcty 23. Index 1 when Secs. 10. American 19.	1 26.1 +o.9 =	Pension Fund Prices 177.3 180-7 +0.3 Man Acc	Bal, Inc. Ed. 2089 234.0 40 Property Ed. 279 7 78.0 717 1 -6 Git Fd. 224.0 717 1 -6 Dyour Fd. 190.7 701.0 Ball Park Fd.9 54.1 51.3 51.3 -6 Eq. (190.7 701.0 Ball Day Ball Fd.9 57.0 56.0 57.0 65.0 65.0 65.0 65.0 65.0 65.0 65.0 65	Property Fishe het	200.2 +01 = CA	LC & C	- USS FundS20.5105 -+3.0189 -	Minerals, Dis Res. Shrs. Fd. Inc. PO Box 194, St. Heiser, Jersey. D534:27441 More August 25	TSO Capace Funda
7 Man makan	Life Agegr. Co. of Pi B, New Rd, Chatham, Ker LACOP Units	2. Medicay 812348 49 24.177 1	Prop. Natural 105 5 111.1 10.0 10.0 11.1 11.1 11.1 11	- A. is. Bond Fund (z) - 57.9 71.9 15 Dep Per 1-(27) - 50.0 53.0 Gut Perc 1-(7) - 10.5 52.4 -1 Global Sq. Pere 10 6.7 6.6 4 -1 Alty-Sqb-desized, #War-by dasDegs. Schroder Life Assurance Ltd.	13 U.5 Special Bond. Pathic Australian Japan Malarsia & Spare	1977 443 -0.3 - 10 1977 1757 +0.3 - 10 1924 473 -0.7 - 64 11165 1204 +0.2 - 64 1201 1265 +0.3 - 64	AL Investments (Bevaunta) Ltd) Box 1012, Numbro, Bermuta, 1899-2915595 U. G1R Find	GRE International lovest Mgrs Ltd PO Bax 194, 51 Helar, Jersey. 0534 27441 Man Cur Fund	Sanuel Mentago Ldn, Agents 114, Old Broad St. EC? Mont Arrey E.J Inc. 12, 12, 2 90 4 +0 11 5 47 8 14 14 14 14 14 14 14 14 14 14 14 14 14	NAV \$409 10R salue US\$12,528.82.
	Matti Goth August 6	S-63792	1902 1903 1904 1904 1905	Enterprise House, Pertamonts, 9705 Ensity Framework, 9710,7 50,77 6 Fust Interest 947,4 260,9 4 Managed 978,3 291,0 6 Decorat 100 2 109,8 6 October 173,7 136, 6 6 Property 777,7 2 104,4 Auturation 128,9 135,9 44	3 Col0	1350 1313 -15 - Ga 1350 1321 +05 - Ga 1354 1425 -01 - Ga 1514 1615 - 14	Boulearo Royal, surcerbourg mid-int. Fund	U.S. S. Price (Actum) 1827.74 22 921	Murray, Johnstone (Inv. Adviser) 163, Hope St. Glasgow, C7. 691-221 5521	P PO Box 2189, Linand Caymain, 2010; (809) 94974 36; Westerwise Cormodely, 1 58 83. Tokyo Pacific Holdings NV Intunt: Management Co NV, Caracao, NAV per State \$1,79,55.
110 tal 110	Op N Dep Rug 24	8.70 8.70 12.12	New Zealand Sth. Brit. Insce. PLC Martland House, Southerd SS1 235 0702 6299 Kneil Key (Manager) 372.0 453.1	European 171.2 180.5 +0	B British Pers, British Pe	506 7 701 8 +27 = 29 554 1 704 1 +02 = 54 554 0 304 9 -	nter Allen Investment Hanagement (C.L.) a Brood St, St Neier, Jersey, Cl. Doubs for Ca. 10 0 10 0 10 10 10 10 10 10 10 10 10 10	Deutscherunt DBLS, 020 +0.005, 4.59 Seeds Franc JSF40 a64 +0.002 1.82 Guinness Mahon Distrib Fund (Germacy)	Hope St Aug 71. Boo 04 70.4d Sharras Fund Aug 72. In 6 49 21.10 Partie Fund Aug 22. In 6 49 21.10 Partie Fund Aug 22. In 6 40 4.12 PR.E.L. International Ltd PD Box 119, St Peter Port, Guerroey, Cl Sterling Deposit. 124 4 78.0d	Tokyo Pacific Hidgs. (Seaboard) NV Inigus, Manaysmert Co NJ. Curucas. NAV per June 394 53. Tymdall Bank (Isle of Man) Ltd. 50, Athol Sc., Douglas, Isle of Man Doc4 24201
obersteine City	Pent B. On Acc. July 33, 1209 Pent Spin of Glob Ady 15, 1209 Pent () Gart MA, July 15, 1207 Pent Bloom NA, July 15, 1203 For Pentions Could Unit Britannia Funda—Series Am Spin Car's Aug 22, 11, 200 Am Spin Sats Aug 22, 11, 200	s please ring extension 519.	Property 140,0 159.77 140,0 155.177.3 -1.7 110,0 16.5 177.3 -1.7 110,0 16.5 177.3 -1.7 110,0 16.5 177.3 -1.7 110,0 16.5 177.3 1	Talyo 1202-2 217 9 -1	Antraitan Pers	190.3 44.3 +1.7 = Gh 190.3 44.3 -1.1 = PO	name - 153.58 452 55.00 56.00 16.00	thanker Pacific Fund Mgrat. Ltd. 2110, Cornaught Centre, Nong Yong Australia FG on 2.3 Marke. 4.001	Steriory Deposits	No Monter Fo
Mancador (M	Community Aug 22	4 1164	PO Box 4, Norwich R R1 3NG. 0603 22201 MIRG (18thaquel Funds) Ltd. Managed Funds (1.1d. 1.1d. 1.	Managee Persian	55-57, Nigs Holborn	WC1V60U 01-831 7481 F.	512.49 Aprils Didd 4.95 Francis Fran	Hambros Fd. Mgrs. (C.I.) Lbd. PO Box Bo, Guernsey. 0481-26521	Magnine Fel (a) 10,57 10	Francisco Sent Sent Sent
	Japan Peri Aor 22	14974	Service Union Life Impurator Section Control Control Control Control	Equity 197 4 701 1 +0 Form Interval 198 4 701 1 +0 Form Interval 198 198 198 4 198 198 198 198 198 198 198 198 198 198	Series 2 Proc. Fe. Fe. Fe. Fe. Fe. Fe. Fe. Fe. Fe. Fe	213 274 4 = 54	Chemic (CI) List "Citifunds"	September Sept	Negit S.A. 10a Bookvard Royal, Lucembourg KAU	Victory House, Bengles, Intl. 114 0 0024 24111 registric
other data adapted to the state of the state	MAIN GROWN AND 22142 Git And 2291. HK Peri And 2270. Aust Growth And 22120 Gartumer Funds—Series American Aug 21172 Australian And 21103	1613 - 1	tor Users July 15 406.1 5 Pearl Assurance (Unit Funds) Lini. 252 High Holborn, WC1V 7EB. 01-405 8441	Do Access 157.7 1955 +0	Trident Life Assu	2774 240 0 == = Ce	Hears Para Aug 15 1 1957 1 1 -	Prime Res. Progs JC1.10 1 177 0.55	Beni of Bermuda Bida, Bermuda. 809 395 4000 Mrs. Intl. Securition 1871.47 Securities 1871	Un 5 10 10 1770 10 10 10 10 1770 10 10 1
	Community Aug 21	7 123.9 17 106.0 1 146.1 72.7	ne, Prop. Dist. 1985 145 Bl me, Prop. Act. 1985 209 Bl me, Prop. Act. 1985 209 Bl me, Prop. Act. 1985 209 Bl me, Eguidy 295 Bl 2	Da. Accure. 109-5 115 1 Lemps Cest tot. 104-2 109-7 Da. Accure. 121-4 128-0 Energy Man. 104. 135-7 147-9 49 Do. Accure. 158-4 148-6 40 Scottish Espainable Life Assoc. Soc.	Facts Cap. Growth Cap. Growth Cap. Growth Acc. From Facts Acc.	166.5 169.5 -0.1 - Feb. 169.5 169.5 201.2 - Co	ren. 6 FF Arz	Henderson Raring Group 1901, Encharge Yours, Hongkong, Austrabi 1,6 73 9.76 710 710 1,6 73 10.18 1,	American Trust	Do. S
A the gates safe by E	incomé Ang 21	4 150.7 - E	1947.7 260.9	Hispan 173.4 182.6 +0. Equity 171.5 180 c +1. Property 106.0 111.6 +0. Equity 171.5 180 c	Pens. G-S Edgad Acc Pens Des Acc Pens Des Acc Pens. Pty. Acc Selsa Bond Find Tri Inv. Bond	7713 2743 - 6713	VALUES METERY WESTERNOOT.	B Le Fevre St., St. Peter Port, Guerraey, C.I. Guerraey Tst	Northgate Unit Tst. Mingrs. (Jersey) Ltd. PO Bov R.; Si Heler, Jersey. 0534 73741 Pacific Pages 22 J.B12.9 23 23 — Pacific Basin Fend 103 Boulevard Royal, Luxembourg.	Do. S
91 5 191	129 Kingsway, London, W 'Asset Builder'	C28 cNF. 01-404 0393 73.01 p 73.01 p EGGL less Co. Ltd	Presistant Life Assumance Co. Ltd. 2stichester Hise., Haywards Nosth 0444 458721 merican Tech Fo	Scottish Life Investments 10 St Andrew Square, Edmburgh. 031-22 Property	Tyndall Assurance 18, Carrynge Road, Br 25 2211 5-Way	ristol. 0272 732241 Gr.	WS Bestische Ges. F. Wertpapiersp undurgung 113, 5000 Frankfunt esta	HIS Samuel Investment Mignat. Infini. PO Box 63, Jersey. In than Ernath Fuer! 1,100 1 195 3	Sin Arc. M. & C. Sin Merg. Ltd. Louisin. Perpetual Eff Mingrs (Jersey) Ltd P0 80x 45%, St Heber, Jersey. D5.4 70517 Distance fr	Di Maraged
	Money May Aug 1	SS1 6EA. 0272-279179	Managed 99.0 100.0	International 105.4 111.1 -0.	Equity Pen.	190.5	atscher fuvestment-Trest inter Landstrasse 11-13, 6000 Frankfurt scenera	U.S. Dollar	PD Box 77, 51 Peter Port, Georges Inger-Dotter Fund	
184 184 189 198	Equity Firest Int. Property Deposit Minest Strick International	265.3 173.5 183.6 146.6 201.6 201.6 201.6 202.7	roperty Equity & Life Ass. Co. Sactor Ave, Southerd SS2 6QN. 0702 333433 Silk Proc. Bend. 20.17	Pens. Americas	Harten Eq	141.5 170.4 - 77. 144.3 154.1 - Wi 139.5 194.5 - Wi 139.5 144.9 - Wi	London Wall, Lordon, EC2. 91-620 3200 inchester Oversified Ltd. NAV July 31 523.01. inchester Financial Ltd. RAV July 31 58.12.	Balances (CSF Freet SERLINS 25 64 + 40 PG - FAR East (Constant) - Ref 2 PG 10 10 - 10 10 - 10 10 10 10 10 10 10 10 10 10 10 10 10	PO Box 121, S1 Peter Pt, Guernsey. 0481 26726/9 UK Stechmeret. 101 634 1,757	Drice Invest Fd Mgt Co SA Lux London & Continental Banker, Ltd. 2, Throgmorton Ave. London. 01-b28-6121 Unico Invest Fund 156-91: 11 d.
Note that the	Equity (P) Fixed leg.(P) Property (P) Deposits (P) Mixed (P) Index Stock (P) Index stock (P)	123 二 = 5	respect Program 117.0	Scottick Martins Assurance Society 109 St Vincent St, Glasgow. 041-24 Flor End Aug 14	Namend Is 6321 Pessine Hear Series UA Equaty LACOUR Units! LACOUR Units! LACOUR (Inits) (Account (Inits)	156.1 164.4 — NA' 157.4 176.7 — Day	eyfus Intercentinental Jur. Fd. Ben N 1712, Necsus, Bahames. JULI2 13.11	Nothern Currency Fund	inti, Fuerd int	Union-lavestment-Sessitschaft SmbH Poulorh 16767, D 6000 Fram furt 16. Poulorh 16767, D 6000 Fram furt 16. Union 1
of Dan Bermit Society	London & Manchester Windlade Park, Exeter EX Lon Investment Trans Fd. 1912. Presents Fd. 1918.	Group 5 108. 0392 52155 A	Gric Front (A) 1125.7	6 St Andrews Sq. Edinburgh. 031-55 Mised	Fired Interest Cach Deposit Lacum Units) Lacum Units Lacum Units Lacum Units Lacum Units Lacum Units Lacum Units	1914 2015 — 01.1 1925 1945 — Day 1049 1124 — PO 1149 1210 — PO 1047 1052 — MA	Sering		Participan Inferrentional Advisors Livi 10-12 Cort St, London W1. 01-439 1391 Enrol With St 98 57 International Fundamen Shiba	16-18 Queens Ro Central, Hong F ang. 5-231417 \$6-Mhy T
The Control of the Co	Flord Interest Fil	1820 -0.5 - 6 461.1 +10 - 80	auty Fund	Pen Mad. Inc. 100.0 106 4 -0. Do. Grid. 200.5 106 7 -0. Pen Fel. 10. 106 1 106 7 -0. Do. Ord. 106 5 112.7 106 7 -0. Pen Fel. 10. 110 113 7 -0. Pen	01-43 Maddor St., Le	15514 15719 = 144 14614 17719 = 144 UST 16614 WIR OLA D2-499 4923 Mar	C Trest Company (Jerney) Ltd. Seate 5t, 51 Hetter, Jersey. 5034-36331 readinate Seate Fund. 51,942 10,000 10,300	LC. Triest Managers Ltd. 10, St. Georges St., Douglas, IoM. 10t. Controlline 794. J144.0 152.0	Author/Heleeld Commodition	Energy intl sup 72 142,87 440 03 470
	Energy in Nor Sis	4 209.6 — 213.1 P. 206.7 — 25.2 114.9 — 20.2	Idg. Soc. Life Fd	Da. Ord	letni. Fd.	5295 A413 - Em	obd.Long Ferm	co Registrar, PO Box 1044, Cayman Is, BWI int Sald Fa. SS B5 29.451	29 Athol St, Douglas IGM, Bord Find	Mercary Money Market Trust Ltd 1.53 1.53 1.54 1.54 1.54 1.55 1.
Tiens	Exempt Mined Fd		Rath, Peret, Feb	Scattisk Wildows' Graup PD Bord 902, Edinburgh EH16, 5BU, 091-57 tow Pol 1 Aug 17 — 2765-2 276-2 tow Pol 3 Aug 17 — 2765-2 276-7 tow Pol 3 Aug 17 — 275-3 276-7 In Cool Aug 17 — 156-7 16-7 What firm	5 5000 Markey Equity	de, W1R 9LA 01-499 4923 1:645 2765 +0.4 — The 1:344 357.3 +1.4 — 4.6	*Offer price lectures 9% prelire, charge, e Empirica Association, three Street, EC2. 1. Income Fd.*	Proventissements Atlantiques SA	Diament Band	1 Ynomes St., Dougha, Isle of Man. 9624 4256. Mert 1946 Fund
21 4 21 4 22 4 24 4 24 4 24 4 24 4 24 4	Deposit Bond 1879 Equity Bond (Acr) 337 Extra Visid Fd. Bond 1776 Far Entery Bond 1177 Git Bond 1178	196.7	ins Pets 5d	Equity Ford	- Windsor Life Auco	r. Ca. Ltd Em	mittage Management J.fd. Royal Square, St. Heller, Jersey, Cl. 0534 76007 erool Furd	14 Rue Aidringen, Lucembourg. 7,001 NAV Ang 11	OC Sm Co*** a	Miles Marie Bourse Marie Marie Bad
An 2010 - 174 Sample 225	Gold Book	\$10.2 +0.5 = M	publy Acc. 1149 121.3	Pern, Fat. Int. Fd. Grd173.8 183.1 +0.1 Pern, Int. Set. Fd. Grd101.5 197.0 +0. Pero, Cash Fd. Grd133.9 136.9 PM Man August 23777.1 777.1 -3.1	N. Auer, Frank	204.3 215.1 — Per 19.0.2 20.00 — Per 19.0.2 20.00 — Per 19.0.2 20.00 — Con 1141.5 149.2 — Con Eer	rehored Heldings R.V. normaal 13, Willemstad, Curacan, ston Agents (not 1/3 Workly St., London ECC : 01-48 6011. Teles: 8814408. 0 Milys	Jardine Fleming & Co. Ltd. Attir Floor, Convaught, Centre, Hong Kong Ji Japan Tit	Serving	Westeron Sees. (Guernsey) Ltd Borough H.c. Si Peter Port, Euernsey. 0481 2796.3 GHR. 6.0510n F4
	Facroly Stand	760.2 +5.45.2 2 250.2 +0.3 - 15.2 2 17.4 +0.45.3 9 17.4 +0.45.3 2 221.9 +0.75.3	orth America Acc	PM Cash Augest 23	OVERSE	AS E	Aronar de la Liberte, Lincombourg victor Agent FFS, Salisbury House, Lordon Wal 216 STA. Tel. 01-920 9776 Teles 897281 1990-0069-0076-00-1 542.72 1 +0.17 1.24 Politor, Investments Life. Advis Street, Douglas, 1se of Man. Agents FIS St Albarn. 0777 33106	JF (1901. 18) 52-53 52-68 52-68 62-6	French Fr	Workhade Gib FO
	Gilt (Cap.) 1.06- De. (Accuma) 2.52- Sold (Cap)	195.8 -0.7 - M 2 243.9 -0.7 - M 101.7 -0.4 - M 101.7 -0.4 - M 107.5 -0.1 - M	ord increase Acc	Eppty 1852 173 9 -0.	37 rue Notre Dame, L. Academis Inv. Adily Investment Pestlach 708, 8000	519 84 Fld Munch 1, Telex 524269 Marsh 22.51 -0.01 Pro	otar In.Fa	NAV Aug 17. New dealing Aughts. Louden Agents: Robs. Florming & D. Prit 01-038 5858 Leopold Joseph & Sous (Guernsey) Albert His, St. Peter Port, Guernsey. 0-801-20648 L. J. & S. Carrenny Funk.	Rothschild Asstralia Asset Majort, List, 17 Bridge St, Sythey 2000, Australia Five Arrown Aust. Eq., Just. 142 1.4530	When Core, Fund. 1-4.0 15.5 1.70 Descript Fund 1.97 2.2 1.70 Percent Metal Fund 1.21.6 1.70 2.20 Percent Metal Fund 1.21.6 1.70 2.20 Percent Core Fund 1.80 2.70 2.20 Fundacial Futures Fit 1.52.6 34.6 Varnatichi Dyspenic Ringt Co SA 10.6 Boulevard Royal Lazemburg Dyspenic Goth Fd 59.52 -0.02
The second secon	Project (Acc) 150. MGM Assertance	. 138.4 Eq	Actife Acc. 1965 413 street Research 1965 113 street Research 1965 115 115 115 115 115 115 115 115 115 1	Article vol. Mirest 94.5 00.7 00.7 Cr. Carmina Mirest 94.0 00.7 00.7 Cr. Carmina Mirest 94.0 00.7 00.7 00.7 00.7 00.7 00.7 00.7 0	Fords Fords Albury Fond Manu P.O. Sor 73, St. hele Albury F. fd. [C1]	Deliving 9:09 +0 23 April 10:00 10:0	Val Cam Ph.3" 572.00 3.00 Val Cam Ph.3" 572.00 3.00 Val Cam Ph.3" 572.05 4.00 Val Ca	Telephone Manager for latest pricesJ. Immen_160	Set 1 Commer Fd. 59.71 10.34 8.45 int Capital FD 516.11 17.55 +0.25 8.45 Far East & Parific Fd. 59.49 10.04 —	Money Market Trust Funds
	MGM Hse, Heene Rd, Word Ust Equity	9 122년 -9년 - 🖫	revident Matual Life Assc. Assn. Itilian Rol, Hischir, Hers. SG4 OLP 9462-52991 ansyed Ord. 143.5 151.2	Peter Frantisepton 107.5 113.5 +0.1 Peter Garboner 105.1 110.5 +0.1 Peter Garboner 105.1 110.5 +0.1 Peter Frantisepton 105.1 110.5 +0.1 Peter Frantisepton 105.1 107.4 +0.1 Peter Frantisepton 105.1 107.4 +0.1 Standard Life Assurance Garageau	For Allen Hersey Alliance Capital M 62-63 Queen St, Lores Alliance Information	ton, EC4. 01-246 8881	mir Find try	K.B. Eurobero Inc	U.5 \$ \$23.10 +0.03 =	Nom Apr Int Cr Notice Mailtinhaid Ltd 36 Bertety Sq, W1X SDA. What May Fd
and the second	Do. Accord 1151. Fixed Interest 154. Do. Accord 155. Property 2.07 Do. Accord 157. Deposit 107. Do. Accord 157. Do. Accord 157	2 230.0 04	operly Ord	3 George St, Eduburgh EH2 2XZ. 051-12 Howard 122 9 4-0. Property 122 9 778-1 4-0. 122 9 778-1 4-0. 122 9 778-1 4-0. 122 9 778-1 4-0. 123 123 123 123 123 123 123 123 123 123	Health Cr Aug 22 Technology Aug 22 Quesar Aug 22 Arbuthnot Securiti P.O. Box 428, St. Heir	ies (C.I.) Ltd. (N)(c)(b) 37.	*Prices at Ady 31. rice Notre-Dame, Lusenbourg, Ldn. Agents: RF. reng Loss Furd SA	Pinedarch US Growth 57.99	Royal Trest Interestional Fd. Host. Ltd.(x) PO Ban 194, St. Heiler, Jersey. Serving Fol.Int. Fd	7-day Fed
July 10 Lines No. 1	Po. Access 1244y 125. Penning Fandy 117. On. Access 50s. 100. Do. Access 100. Do. Access 100. Pen. Borth American 127. Do. Access 127.	123.4 -0.9 - 60	Findon Funds mapped Ord	Perside Managed 249 7 203.7 Perside Property 184.7 177.6 +0 Perside Engley 187.1 197.6 +0 Perside Engley 187.1 197.6 +0 Perside Engley 187.1 197.1 197.6 +0 Perside Engley 187.1 198.4 +0 Perside Engles Links 198.8 198.8 -0 Perside Column 188.5 166.5		198.3 198.4 0.10 100 197.0 710.4 0.59 Good 197.0 30. 74-3. 24. Good Good Cork	fles Securities Management Ltd	NAV Won 9,108.62. IOR value US\$11,279.66 The Korea Trust Mas: Dacken Investment Trust Co.Ltd. 44-5, York-dong, Yongdongo-Air, Scoul, Korea NAV (Aug. 11) Won 12,172 (US\$15.06).	2 Bostevard Royal, Lovembourg SCVTrch RAY	Money Market
tion of the second	Pers. Pacriic Basin	157.8 -0.7 - 50 157.8 -0.7 - 50 164.7 -0.4 - 50 114.7 50	operly inc. 100-5 112-5 +0.1 -	Seetes (2) Managed Food 256.6 770.2 +0.3	64141 Sterling Fet Int.	terms 994d	Artente Pountry HIR, EC4. 01-623 4660 Attente Angel 77 511 48 +0.07 +0.07 10.	P.O. Box LDB, St. Herier, Jersey, C.I. 0534 37361 Equity Learned For East 514.57 15.50	Final Indexest Franks OM 10.57 11.08 -0.01 4.96 ON 10.57 1.08 -0.01 10.30 ON 10.57 O.52 +0.01 10.30 ON 10.57 O.52 +0.01 10.30 ON 10.57 O	77-25-177 Acc 10.175 10.76 Ot Call Monthly Acc 10.125 10.74 Min Call
washing Part Mi	Pers. Managed 124.1 Do. Accurs 1124.1 Managed 1124.1 St George's Way, Stevening Managed 1253.4	Prince Co (UK) Fr. 0438 556101	Printed Fd		200.0 Butterfeld House, Gr 150.8 Houseary, Barr SFO. 1	rand Carman 1,201 1,2021 Over Merraney Mingt. Ltd. Fra	BON 73, SI PRIOR PORT, GUERTORY, GAST-20541 	Japan Int, Fund	U. Crowth 1750.3 102.5 -0.2 146 Internt 5 tr 510.10 10.9 -0.6 10.9 -0.6 10.9 -0.6 10.9 -0.6 10.9 -0.6 10.9 -0.6 10.9 -0.6 10.9 -0.6 10.9 -0.6 10.9 -0.6 10.9 -0.6 10.9 -0.6 10.9	Bank of Scattland 38 Threadmends St, EG2P2EH. 01-928 8060 Chouse Acc. 10.00 10.47 Mayl Carl Barclays Prime Account PO Box 125, Northampton High Int. Cenue. 11.00 10.38 0vi Carl
7. 10. 10. 10.	Property 200. Early 20	204.7 +0.2 - R0 204.7 +0.2 - R0 204.5 +0.2 - R0 204.4 +0.9 - R0 204.4 +0.9 - R0 204.4 +0.9 - R0 204.4 +0.9 - R0 205.6 +0.9 - R	retractional 170-5 (108.1) +-0.2 ph Inscore 171, 9 (108.2) +-0.2 ph Inscore 171, 9 (108.2) +-0.8 pt 252 pt 354 pt 354 pt 354 pt 355	Index Listed 130 9 137.6 Footy 127.6 Footy	Bank of America I 35 Boxlevard Royal, Worldlows Jos	513.61 14.40 Free But 18.10 Free But	re World Fund Ltd. refleid Bldg, Harniston, Bermuda. Valy 31	10.5 10.5	Brook Fund h197.7 197.8 107.8 1197.8	Britannia Grp of Investment Companies 29 Finsbury Greco, EC2M 50L. 01-388 2777 Cater Allen
	Do. Accum. Property freit Equity loit. On faccum. Git-Enjust init. Do. Accum. Garanteed nat. Do. Accum.	190.0	irrotannal Pets Acc. 145.1 156.7 +0.3 — ph Int Pens Acc. 154.0 162.2 +0.7 — ch Pens Acc. 154.0 162.2 +0.7 — ch Pens Acc. 164.1 132.4 -0.4 — v Eastern Pens Acc. 163.6 177.5 — 0.1 — cens 51s Pens Acc. 163.6 177.5 +0.4 — 1 Fund 165.1 165.1 165.7 +0.4 — 1 Fund 165.1	2, 3, 4, Cockspur St, SWIY 5BH. 01-93 Single Lang Plans Growth Account	1, Charing Cross, St. Hulgitt Trust Unight Trust Unight Trust Unight Trust	Margariticani	# Ap 13	Lymbs & Peat, Cladte (Generasty) Ltd PD 80s 147, S1 Peter Port, Gutrnitey 0481-23485 Conceptly Fund	Schroder Honey Frank Ltd 115.2621	Stretting
	Do. Access	133.8 133.8 133.8 109.2.5 109.3 129.4 129.4 129.4	restantial Assumance Co. obove Bars, ECIN 2NH. ol-405 9222 initial anaged Aug 22	Projectly FG Account 112.1 110.0 112.1 110	1, The ress St. Deeptas. Uni-Australian 13: Uni-Australian 13: Uni-Parris 7 rest. Uni-Parris 7 rest. Uni-Parris 7 rest. Uni-Parris 7 rest. Policinsing 13: Bishopsgate Caram PO Box 42, Douglas, in	1955 1973 - 1550 677 1964: Ser. Ltd. 6.7. 1964: 0824-21911 6.7.	77 Par 54 59 4 40.07 9 46 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Cloyds 7-10, Press	Am in 7 st	Bartineton & Co 1td
Transport	Leon House, 2,33 High St., Property Post. Equity Post. Equity Post. Identy Market Money Mile. Page.	700.4 563.5 110.5 457.2 266.4	redential Pensions Limited obtavn Bars, ECLIN 2004. 01-405 9222 trethy Fe Jan. 22	Sim Life Unit: Assurance Ltd. St. James Barlon, Sristol B 599 751. 0272 4 Ministro Acc. 200.1 294.4 +0.4 Property Acc. 309.7 199.7 Equity Acc. 329.4 573.1 +0.4 Forto Impress Acc. 3173.1 +0.5	ARMAC* Aug s COURT** Aug e COURT** Aug e Organd isse **3.0 Zb911 Sridge Elamapemen GPG Box 590, Norg N*bish Aug 15 110-11.1 Nopos FO Aug 22	rt Link. GT. Rong GT. 14 750 4.070 - 4731 GT.	Bort First	Lieyds Int Income 57948.5 int 10 12 12 12 12 12 12 12 12 12 12 12 12 12	Schroder Unit Trest Migrs. Int. Ltd. Box 273 St. Peter Port, Generator. Minys. Carrency*	Loughard North Central PLG 17 Bruton St, W1A 30H. 01-499 3434 Notice Dep
in the second se	Orporit Deposit Pers Managed Managed Managed Managed Managed Managed Do, Pers Managed Do, Pers Morth American	198.5	fee Lintero App 22 (19430 94.99 pp Fasto App 22 (19530 97.93 94.99 she Franci Aug 22 (12.5931 12.5931 94.99 she Franci Aug 22 (12.5931 12.5931 94.99 she Franci Aug 22 (12.5931 12.5931 94.99 she Franci Boutanal 184.7 94.99 sharece House, Tumbridge Wells, Kent. 1892 22271	Total Leibert Acc. 9-5 99.5 99.5 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10	Box 271, Queersway F Jersey Cl. U.S. Dellar Deserminal	Estiment Mingrit. Ltd. 6.7. House, Quren Street, St. Heler, 6.7. 10534-73124 627 Street Funds 2. St. 52.031 7.164 +0.000 11.000	Pacific Fu. 519.29 Assan HK Growth 511.49 Assan St. St. Heler, Jersey. 0534-73741	Lioye's Intl. Mency Warket Food Ltd PD Ro 13s, St Peter Pt, Guerrory. 0481-24985 Styrten Cless Ltd 1998 - 10.76 Other Lists Revt dealing day August 29.	Hoop Kong Fund*	91.99 New Landon Rd, Cheimsford. 0245 51651 High its Cheese Rate. 110.36 10.851 Double Call MidDand Bank ptc PO Bo- 2, Shefrield. 0702 20999 Ext 8738 High int Cha
And Arthur and	Do. Pess. For East. Ob. Pess. Letal, Currency Do. Pest. Ledae, Linked	124.0	party Fund 1969 1959 1959 1969 22271 party Fund 1969 1959 1959 1969	U.S. Dollar Acc	Gold Fund		For Lineary Torkin, 0 00.001 10.3	Bridge H.e., Castletown, 10M. 0628 B20151 SAIF	Hoop Aring 1 He Fd	28 Western Rd, Romford RM1 3 LB. 0708 66966 High Int. Std. Acc. 10 98 10 50 Deligi Call Premer Acc. 10 98 10 50 Deligi Call Typidall & Co 7903 3 Princess Victoria St, Bristol BSB 68X, 0272 732241
	Moneywise Friendly Sc 80 Holdenhorst Rd, Bourne Moneywise	50-21 6-22 6-79-31 Mai	urby Cao	Pers. U.S. Bernet Acc., 111.1 117.2 +0.1	Starling Desoninated American Invests	99.7 107.2 -0.4 0.70 527 87.7 44.38 -0.2 - PO 8 106.7 114.7 +0.3 1.80 md.	truore Fund Managers (1916) (a) Bor 32, Douglas, 13r of Mar. 0624 23911 Dr. 1867-192 70.5 Grin. 1867-257.9 274.0 860	Australian to Aug 22	Securities Selection Ltd. Bernuda Hsc., St. Peter Port, Gu'rov. D481 26268 Forestund	Special Act10.50 11.02 Mith Cold Over 110,00010.75 11.30 Mith Call
	99 Sandling Rd, Blaidstone Enably Fd. 1.00- Massaged Fd. 21.0.3 Pers. Eq. Fd. 98-5 Pers. Mayel, F. 99-5 Pers. Maniford	1035 — Re 1035 — Ne	rygal Life lesstrance Ltd. yw Haif Place, Lwcrpool L69 3HS 051-227 4422 yw Haif Place, Lwcrpool L69 3HS 051-227 4422 yw Shird Fd	Swiss Life Pensions Ltd	Mings Currency (Inc.)	(13 88 14 62 5 50 Giel (17.03 17.04 0.25 Giel	Box 332, St. Peter Port, Guernsey, Gt. stog Managed Fd(148.37 153.03	Salari 1982	Singer & Friedlander Lin. Agents. 21 New St. Bishopspare EC2M #HR 01-623 3000 Detailonts DM37.47 20 91 40.21 934 7000 12 Aug 6	and an arrival percentage rate adjusted for requestry of interest Credit.
	MEZ. Penginen Ltd. Milton Court, Derkong, Surn Netes Le. Can	rey. 0306 887746 Pri 1923 +14.9 Ge 319.0 -1.3 Mo 53.7 +45.2 Rey 121.3 +46.1 Ext	ged Life (Unit Linked Assertances) 164.	99-101 London Rd, Severnaskt. 0732-4 Equity	50161 Britannia Fand Marca GH 7nct II D 4 1 K All Jerney Fur "Turning Weekly Brown Shipley Tat. PO Bos 583, S1 Helier Stein Rosel Helier		4 Worlins (07	Ballefo at \$9.09 9.28st 15.09 9.28st 15.09 9.28st 15.09 9.28st 19.09 9.28st 19.09 9.28st 19.00 9.00 9.00 9.00 9.00 9.00 9.00 9.0	Standard Chartered Off, Money Mikt Fund	Prices are in pence univers conceived and participal and those desconated 5 with no perfus to U.S. Goldars. Vields 1s shown in last columni allow for all buying expenses. It Offered prices include all expenses, a Today's prices. It Vield based on other price, diestimated. 9 Today's opening price, diestimated. 9 Today's opening price, a Distribution free of Ur Tares, p. Perrodic premium insurance.
	Helen Left	1409 +112	rend Price, Fo 1140 +0.1 most Ind. Fo 541 5 545.2 +0.2 most fall, Fo 1168 177 9 most fall, Fo 1168 177 9 most fall, Fo 112.5 11854 +0.5 Centrgle Assurance Co. Ltdl Rendre Assurance Co. Ltdl Rendre Michael Meds 1046.2 52161	TSB Life Ltd PO Box 3, Reens Hse, Andoese: Hants SP1: 0264 62188 Manager Fand	PO Bos 195 Hamelto		Maria (PI) Residentes Front	#17 Acc \$131.06 131.73 =0.45	State St Bank Equity Hidgs NY Car Mgt Co, 6 John B. Gorsinance. Curacan. Net asset value Aug 14 \$7.7c. Strategic Metal Trust Mingrs. Ltd.	a University price includes an eventure accept agents, commission, 3 Olfered price metudes all expenses in bought through managers. If Provious day's price, if Guerrary gross. # Suspended # Yielo believe Jersey Las. † 1=-subdivirum, ## Only available to
tal war in page 1 to page 1.	Melinder i See ee 16,8 Next sub day S	53.0 +2.31 — Ma eptember 23. Uer	Propert of	Money Fund 102 0 107 5 Equaty Fund 175.5 107.3 -0.3	— Bogrey, Income	5-11 (26) high 198 Red sub am September 4, and (eversion prograt (UI)—Galfrington France Sanb St, SI Helmer, Jensey. 05:34 751 51 Prog. Aug. 23 'lovi b 114 2 d 5:38	Service Frank Strong St	8B Ashoi Street, Douglas, IoM. 0624 26666 Strange: Meni TriSO.6729 0.8957	rates of MAV increase.

24 DEAPER A STORE S-COIL

| FINE HOTELS—Continued FT LONDON SHARE INFORMATION SERVICE Apr State | Savey 'A' 10o ... | 280 | 10.4 | 2.0 | 5.4 | 1.018.7 | 12480.1.8 | 12.0 | 2.2 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 ENGINEERING—Continued **AMERICANS** BEERS, WINES-Cont. DRAPERY & STORES—Cont. INDUSTRIALS (Miscel.) That's BTR Fail i Stock 1

F May Aug UJAbbott Labs B Abranatson 14 F. I. Abranatson 14 F. I. F My Ag NAcco \$1

Mr Jin Se De Challed Corp \$1

My Jiy S DAmar \$1.

F My Au NAMardahi Sc.

F My, Au. N. Amer Medical int \$1.

May Au My PAlamer. Nat. Res \$1

Ap Jy Ot. JalAmer. 17. \$1.

May Au My Aug Nat. Sc.

Findy Aug Nat. Sc.

Findy Aug Nat. Sc.

Find Y Ot. JalAmer. Sc.

My Aug N. St.

My Aug N. St. BRITISH FUNDS | State | Stat "Shorts" (Lives up to Five Years) Over Fifteen

22My 22MyConvers 10Anc 1999 ...

14J3 14Jul/17eas. 13pc 2000 ...

22M 22May/17eas. 14pc (98-01 ...

22Mu 22Jalench. 12pc (98-02 ...

11Apr 110ctCorw. 10pc 2002 ...

13Apr 110ctCorw. 10pc 2000 ...

15Ja 25Jul/17eas. 134pc 2000-03

15Ja 25Jul/17eas. 134pc 2000-04

14J3 14Jul/17eas. 134pc 2003-05

5Apr 50ctTreas. 8pc 2002-05±

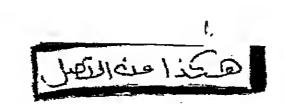
22Jly 22Jul/17eas. 114pc 2003-07

26Sp 26May/17eas. 134pc (90-408

10Mar 10STreas. 53pc 2008-12±

26Jly 26Jan/17eas. 74pc 2017-15±

12Jul 120ctExpt. 12pc (13-17 CANADIANS | 104 | 10.77 | 107-108 | 10.44 | 10.77 | 10.44 | 10.77 | 10.45 | 10.77 | 10.45 | 10.77 | 10.45 | 10.77 | 10.45 | 10.77 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.45 | 10.4 20Hor 20Mar | 0.0, 2'20C '03 (310.71) | 913 | 13.4 3.41 | 3.83 | 3.70 | 3.84 | 3.83 | 3.70 | 3.84 | 3.83 | 3.83 | 3.84 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | 3.85 | | Second | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | 1985 | April | Color | Colo



Financial Times Tuesday August 28 1:		DTV Combinued I I	INVESTMENT T		AND CAS Continued 1	25
many the state of	Hock Price at Net Curific's Pe Poid Stack		INVESTMENT T Avidenta Paul Stock Aug Envrty Const (1 August On Did 50n	Last. Der . Ynd Divident Price x8 Nct -C'er-Gr's Paul 196 16 7. 10 33-14-76	Stack Price at Met CwiGr's PE	NOMURA INTERNATIONAL LIMITED
	Cabroan 151.00 0.75 1.1 6 m 2.8 October \$10.00 1.0	Abr (3 14 14 14 14 15 17 14 14 16 17 17 17 17 17 17 17	October F&C Eurotrust	117m(13.6) (-10.7) 1 Jan. J 83 1-7 1 1.6 1 1 1 2.8 feb A 98 130 71 1 6 0 7 3 - 111 1 1 1 4 1 1 8 1 Jan. J	uty 6 area 2 51 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NEW-ERA INVESTMENT AND UNDERWRITING
April Dec Metaster Lentique 11 227 0.01	Clyde N.V 55 & 6 1 3 01 4 7.812.8 May Dec.Pearney	284 26.3 1.35 Ø 3.7 Ø Sen	Joly First Enarloge Assets. 1. Apr First Scot Am	9 114.5 0.05 1.7 0.8 May 1221 76.3 5 19 1.0 3.3 - 195 18.6 1216.5 14 4.0 July 20 1.9 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0		OFFICES WORLDWIDE 3 Gracechurch Street EC3V 0AD Telephone (01) 283 8811
a tile tile til a de la company de la compan	nc \$0.125		Do 7or Cvilinte 1999 Sept. Flowing Claverhouse 50p. Octif Ferming Enterprise July Floming Far Eastern Apr-Oct. Floming Fledgeling	205 186 6 425 1.3 1.4 January 117 5.6 07% — 16.0 — May 203 30.7 17.5 1.0 5.1 — May 260 18.5 2.0 1.1 1.1 — 91 13.2 2.25 1.0 3.6 — 444 13.2 3.0 6 1.0 —	Do. Wernarts 'B' 27	MINES—Continued
April Octobrita 50 12.12 1.0 2.9 2.917.6 — Tottenha Lan. Aug Biorcross 50 16.7 7.5 2.4 6.7 8.4 Oct April Trottenha C5 5.9 — 12.7 — W21st C Feb. Aug Datwood Gro. 65 5.9 — 12.7 — W21st C Feb. Aug Datwood Gro. 65 5.0 1 266.5 — 2 — Dec Viger be Lan. Jane Lancid Rick & Elect. 163 4.6 7.5 2.8 6.6 7.3 Jan Lefty Ulser T Ray Bool Priliams Lat SA 778 26.3 050c 2.2 5.2 8.7 April Sesti Web Lit.	VIDD		Aay-Oct Fleming Merc	200 26.3 2.811 4.0 October 208 16.7 7.0 0 3.5 May	#Edicinburgh Secs	Central African JuneFalcon 250c
- PLM 15 x25 £12 NPartite Sales 100 45 - 52.4 2.2 7.6(6.8) N April Oct Partor Rool 4 156 112.9 865 3.0 8.1 5.6 Feb. April 2 2 2 2 15.6 181.50p.	Aotors and Cycles Jane Dec. 00.8% Cav C	1	Do. Cap	38 4.5 74.9 1.0 17.6 - 222 - 4.5 1.0 17.6 - 20 1.0 17.6 - 20 1.0 1.0 1.1 - 20 1.3 2.9 - 2	#Fairmorth Pet	- PACM 50:
Just How Pearston 543 30-4 14.0 2.7 3.6 3.2 9 10 10 10 10 10 10 10	Milite 10p 30 A 41.7 2.8 4.011.4 5. Units 227 10.2 01.2 0.5 0.5 1.3 0.5	100 - 50 A.6 1.07.1 2.921.6 Aug. umP1 236a11.8 7% - 4.2 - Sept Grp 1 19 4780 - 22.7 a 555 13.2 5.5 3.1 2.221.0 Jan. 1851 - 67 - 40486 1.1 6.91.3 Feb.	Apr. Gen Consolidated Har. General Funds Do. Corw. 10p	205 16.7 18.4 1.0 3.9 — 476 30.7 9.0 1.0 2.7 —		V. Apr. Peleusamide : Kina. 124 111.3 Q1n. 4Q 12. 9.4 13. 9.4 14. 15. 15. 15. 15. 15. 15. 15. 15. 15. 15
Feb. App_FRidergton Br. St. 225 2.7 11.5 2.7 6.2 6.6 5 Feb. App_FRidergton Br. St. 228 14.5 QS-yeb — 2.7 — 2.7 — MayPlantons Sept. ApriliPlastic Does: 10p. 37/mills.8 d2.38 1.0 9.217.6 July Oct. York Tra. July 108 — 891.64 4.7 2.213.7 Feb. Oct. Polity Feck 20 — 222 2.7 12.8 7.3 1.9 7.5 July Jan IAE	100 100	20 44 1411 h0.91 1.5 3.032.3 Feb. 23 — 10.6 1.0 3.820.4 Mar. 126 26.3 19.25 1.4 8.1[1.3 John 10.6 1.5 2.5 27.2 8.31 1.6 1.5 2.14 8.8 Co. 25 27.2 8.31 1.5 2.14 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2	DotGresham Hse	133 27 3.71.014.0 179 6	PiCC Oil 10p	
Jan. Sept Powell Outl. 50p. 318 2.7 16.0 1.6 7.2 2.1 May Nov. American March 1988 1.0 1.0 Jane 1980	912 14.5 m1.4 2.8 2.2 la.3 Nov. Aprillitio. Real Pro Luty Walker (Afres)	20p 376x613.0 13.5 1.4 5.220.3 De # 24.5 1.0 37.2 3.0 July FL20 540 3.5 045.4 0 5.3 0 Apr y 115 9.4 6.0 2.5 7.5 3.1 May 1.1 17.4 6.0 0.5 2.4 4.0 0.2 0	— Do. Cap. ≥p	190 30 7 53.3 0 10 2.5 May (5 53 14.11 0 05 2.1 0.1 April (5 54 54 54 54 54 54 54 54 54 54 54 54 54	Intl. Atlants Peal 285	Variat Extent Res 15
Jan. Aug. Reathers Metal. 65 90.7 1.5 0 3.3 0 Jan. July Dunlop 5 Jan. July Flight Re July North-Ranco (R) 10p 186 ct. 47 5.3 0.922.6 Jan. July Flight Re June Hors. Apr. Ranch Corp. 252 27.2 11.0.0 1.4 5.415.0 Sept Deck Wid-Fair Jan. July Florence Common 500 14.5 12.4 2.3 3.315.0 Sept Deck Wid-Fair June Local May Deck Lucas Ind. 10 Jan. 25 J	Hidos, 10p. 33 14.5 1.57 2.6 6.8 7.2	H)PPING I 🕾	Feb. Keystone Iov. 50p — Dect.ase View Inv. March Lanc. & Lon. Iov. Oct. Law Debenture Feb. Leda Inv. Inc.20p — DulyLon. Atlants	26 207 95 11 2 0 20 2	Crightesters On lung	Whushor Gid NL 7
March (Renown Inc V50) 197 (2.4 (025%) (0 1.9) (0 1.9)	ides and Distributors I Jan. JulyHunting Gibso	94 26.3 3.0 2.1 4.6 11.9 0 151 2199 — — — — — — — — — — — — — — — — — —	ictober II.on. & Gart. 50p	240 15.81 1.51 1.3 0.9 — September American 236 4.6 45.8 1.0 3.5 — September 136 26.3 1.1 2.5 — September 25.75 1.1 2.5 — September 25.75 1.1 4.2 — September 25.75 1.1 1.0 12.1 — September 25.75 1.0 12.1 1.0 September 25.75 1.0 Se	Wildenarch Pri N.L. BJ	Martin M
Jan. Oct. Reserver	500	00 32 9'82 AP	— Do. Cap. 10p	157 — — — — — — — — — — — — — — — — — — —	Workshore 10c	Nith. Ralgarii
Dec June Do. 'A' Soc.	1.51 49 H.5 3.0 2.7 7.0 6.0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AND LEATHER	Aug Monks Invest	76 123 14 10 23 -	Petranol 10p	County Person Minima Sec
Jan. Oct. Sangers	45 14.5 ph.1.5 4.4 5.4 5.2 Dec. Juriel Headlam, Sam Meter S 98.7 6.5 2.5 10.7 4.2 10.5 May Oct American S 94.9 (2.5 4.2 10.2 4.2 10.3 4.2 10.5 10.5 10.5 10.5 10.5 10.5 10.5 10.5	147 [43 /3] 17332 Feb 159, 39 1445 13.0 14611.0 7.0 1200 1460 4.6 1470 17 43.8.5 Jan 170.0 1470 1470 1470 1470 1470 1470 1470 147	Aug Murray Northn Do. 'B'	136 16.7 †2.2 © 2.3 June 257 7.4 †3.15 1.0 1.9 May 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Whenth IA & St N	#Sanson Eprin M. 17
April Sepi Securior Sp. 198 272 1.59.75 1.217.6 July April Touright Av Sep Do. W. V. 174 272 1.59.75 1.415.1 July April Touright Av Sep Do. W. V. 174 272 1.59.75 1.415.1 July April Touright Av Sep Do. W. V. 174 272 1.59.75 1.415.1 July April Touright Av Sep Do. W. V. 174 272 1.59.75 1.415.1 July April Touright Ave. 175 272 1.59.7	SOUT Apr. Sept. Abercon RO.3 SOUT Apr. Sept. Abercon RO.3 Sept. Mar. Longle Apr. Sept. Abercon RO.3 Sept. Mar. Longle Apr. Sept. Mar. Mar. Mar. Mar. Mar. Mar. Mar. Mar	H AFRICANS 0	Mew Ars. Jov. Tst. 50p. e Deciliere Court 50p. April Mew Davien Oil Tst. New Throg. Inc. Do, Cap. £7 Do. Mew Whrts. New Tokyo Inv. 50p.	36 4 8.6 2.25 0 8.8 Feb. At	#Szeron Resi	#Spargos Explu
Apr. (C.I.Sharma Ware 200	k P. 20p	0 72 27.2 012c \$\phi\$ \$\psi\$ \$\phi\$ \$\phi\$ \$\pm\$ \$	Decl 928 Invest	147 4.6 45.5 1.8 5.3 Decembe 246 14.5 3.0 1.2 1.7 — 168 4.6 5.7 1.1 5.1 — 115 14.11 3.0 1.2 3.7 — 231 4.6 5.4 1.0 5.3 —	IISsea Rox. (Brn.L. 39	Move Ayer Hitam SM1
Oct. May/Smith.Riegh.10p	195 27.2 12.29 5.4 1.71.2 4 (60ct) 100 113.9 7.5 6 10.7 6 10.7 6 Sept. Mar. Allled Textile, 100 120 120 120 120 120 120 120 120 120	EXTILES Aug. Aug. Aug. Aug. Aug. Aug.	Product for Process 19, 12 to Precious Metals 1 st. Peb. Raction Oct. Rights & Iss. Cap	249 2.7 8.4 1.0 4.5 80 12.3 50.19 0.3 Nov. M 104st13.8 †4.4 2.3 6.0 —	Wilircentrol 255 9.4 10.0 2.2 7.0 6.3 Ma \$\times \text{Tinkkar Res ir 5p} \\ \times \text{40} \\ \times \	July Januar 12 o
May Get. Sporing Hidges 50	se 200	200 - 64 2.7 4.5 1.9 10.0 7.0 Dec	Oct Robero (Br.) Filo	205 30.7 4.4 1.0 3.3	Www.dsdr A50c 81 - - - - -	- WSupreme Corp MS1. 59 0°1€ wi234c
Oct. Mag/Stag Fursitors	16 Sind. 136 186 40 3.1 3.70,9 Mar. Sept. Do. 7 pcDeb 8 spapers 333 30.4 13.0 1.4 5.916.4 August Crowther (J.). Grp. Sep. 117 90.4 3.1 3.1 3.814.0 Feb. Oct. Discon (March Collocon Charlet).	35 18.6 1.0 1.4 4.121.0 May 229 16.7 7.3 2.3 4.611.9 Apr. 92 17.12 2.22 — 3.4 — Feb 100 27.2 13.5 4.2 5.0 6.6 Apr.	AprilSt. Andrew Tst	199 2.7 14.85 6.9 3.5 347 30.4 13.5 1.1 5.6 132 263 13.5 0.9 3.8 227 4.6 4.7 1.0 3.0 332 12.3 7.7 0.9 3.5 Jan Do	nFriday Hames; — Bouglas, B.5.67 (2.3 \$\.\phi\$) (2.4 \$\.\phi\$) (2.7 \$\.\phi\$) (2.	Miscellaneous - WAdmirs Mines 10
Apr. Aug. Sterling Inds. 2/29 72 2.7 2.2 1.3 4.2/23.6 Apr. Doc. Stockiels. 27 13.2 2.2.6 2.3 13.5 3.0 Apr. I Aldcom in Apr. July/Stoneit/H Hids. 92 16.7 d3.0 6 4.7 6 Apr. July/Assoc. Par Oct. May/Stoneit/H Speak. 22 17.9 2.5 2.7 12.9 Oct. Apr. Autl. & William Speak. 22 17.9 Cot. Apr	per 158	Op 87 1886 4.5 3.3 7.4 5.7 Apr. Op 56 2'83 55.0 July Op 34 6'82 4 8.0 July Op 34 6'82 4 8.0 July	Dec Scot, National NovScot, Northern Dec Secr. Alflance Tst Dec Secrities T. Sc April Shires Inv. 50p June Smaller Cos Iov Tst June SPLIT Inc. 10p	193 4.6 14.0 1.1 3.0 Det. A	1. Liacks Wen	AuglEastern Tras. Crv., 50c.1 6.16 2.7 Q90cl • 3.1 Femmex Int. Ir 10p 35 35 2.7 2.7 2.7 2.7 2.7 2.7 2.7 2.7 2.7 2.7
Mar. Sept. Dystane 159 30.7 67.9 9 8.6 9	ric, Vtg 112 30.71 4.72 1.7 6.014.2 January Lister	58 26 3 60 08 99088 Dec	SPLIT Cap, 10p	£123 — 09% — 7.3 36 46 0.4 1.2 1.6 153 9.4 01d 6 0.5	PLANTATIONS	#Rev Salma Res CS1 27 977 18.4 2.5 st.6 July 10.4 95.000 12.2 14.5 Q92.0 35.4 17.5 Q92.0 35.4 17.5 Q92.0 35.4 17.5
May Deck Tod (W. 6. J.) 5p. 136 -	April Maroton Bras 1 no Group — 148 14.5052.9% of 7.8 of July Dec, Hotts, Marrig. July Dec, Hott	Dec. 1.5 1.5 1.8 1.5	July Stocktolders low	92 14.5 h1.83 1.3 2.8 Paid 69 9.4 N3.1 \$\tilde{0}\$ 6.5 134 4.6 31.5 0.9 3.4 226 4.6 7.5 1.1 4.7 163 18.4 3.4 1.8 3.0 211 26.3 2.0 0.9 1.4 September	Rubbers, Palm Oil	NOTES ess otherwise indicated, prices and set dividends are or peace and ornisations are 25s. Estimated price-arriving ration and covers are do in latest formal records and accounts and, where possible, are attell on half-yearly figures. PVEs are calculated on "net" distribution is, earnings per share being compared on propriet after Leastion and cliented ACT where amplicable; brack-field blaues indicate 10 per cent
Section Sect	345 14.5 4.9 \$\to\$ 2.0 \$\to\$ May Feb.Pichards 100 \$Ki 10p	36 14.5 11.45 0.2 6.9 — Dec. 100 30.1 3.8 6 5.6 6 Feb 25 1.25 3.1 7.185.00 Mar. 100 11.6 7 2.5 1.8 8.7 7.7 Apr. 138 9.4 102.5 1.5 2.811.3	Aug Throgmorton	83 14.5 h1.65 1.0 2.9 January 116 30.7 3.4 1.0 4.2 April Se 95:e13.8 14.35 1.0 6.5 Nov. M. 36 ³ 227.2 2.79 1.1 18.9 Apr. No 259 — — Apr. Oc	pt Harrison Mb, Pt MS) 114 16.7 v019c 1.1 5.4 00 or	ware uncereine in Decisionals on international, profess are more invasional distribution; that compares great dividend costs to profit. To action, excluding exercitoral profits/losses but including profess, and action of the ACT. I visit in an action of the action of
Sept	Vist 'A' 109 2.7 22.46 1.33 3.412.5 May Not. Spencer (Gen.) mit \$9.10 162 30.7 13.5 3.4 3.110.3 Apr. Nov. Sundard 'A' 10 10 10 10 10 10 10 10 10 10 10 10 10	52 16.1 2.25 3.3 6.2 5.4 Apr. 926 81 Oct.	NovTor. Invest. Inc	75 94 197 10 752 May Sc	Teas Assum Dooars £1	Highs and Loves merical thus have been adjusted to allow for rights sixues for costs. Interm since increased or resumed. Interm since reduced, passed or deferred. Tax-free to non-residents on application, Figures or report sweller. Not officially UK insert; dealings permuted under Rule 16314164. USBM; not lessed on Stock Enchange and company not subjected to same degree of regulation as fixed securities.
Jan MayWade Potts 10p 80 30.4 12.2 2.8 3.916.9 F Jun Sp DecDyshy & M May DecWater Hor. 5p 11 1279 — 3.4 3.6 Sept. Apr. Jolkes Page 10 14.5 3.8 Sept. Apr. Jolkes Page 14.5 Sept. Apr. Jolkes Page 14.5 Sept. Apr. Jolkes Page (aft. Carlotte Page (aft	rer. 119	100 13.2 5.0 4.4 7.1 3.5 July 52 14.5 2.5 13.6 5.9 5.6 Jan 100 100 100 100 100 100 100 100 100 10	Do. Capital £1 NovUS Oct Corp DecVising Resources OccWernyss Inv. £1 Mar. Wester-bottom 5p Aug. Witan Inv. Do. Warrants Sepl-Yeoman Inv.	554 Apr. 0.0 172 3.10 6.52 1.0 5.6 May No 82 4.6 1.0 1.0 1.7 474 14.5 20.0 0.9 6.0 81 18.6 50.7 1.2 1.2 126 4.6 2.55 1.0 2.9 22 22 30.7 18.2 1.0 5.2	Williamson E1	rings at time of experiment, indicated devident after pending scrip analyse rights issue: cover relates to provings dividend or loveness. Mercyc bid or recognisation in progress, Not. comparable. Some interior reduced final analyse reduced experienc indicated.
Mar. Sept. Westn. Goard 10p. 213 16.7 8.0 2.4 5.411.2 Jan July Smarth (Dr. Jan Aug/West's Group Int. 68 2.7 5.51.2 11.6 9.2 1.617.8 Hey Oct. Whatma R. Angel. 679 30.4 7.8 9 1.617.8 Feb. Sept. Evaluation of the Sept. Evalua	Do.	153 13.2 17.8 2.1 7.4 8.4 0 144:013.8 6.0 4.7 6.0 3.8		and, etc Aug. Fe	h. Durban Deep R1 \$153-1-261 \$5. East Rand Prp. R1 \$69 \$681 \$1 \$2. East Rand Prp. R1 \$90 \$1. East R2 \$2879-23.7 [10]7000 3.1 6.3 \$	Statement. Cover allows for conversion of shares not wow ranking for dividends or ranking only for restricted dividend. Cover does not ellow for shares which may also rank for dividend at
Oct. Mayverikes (1) 123 123 123 123 123 123 123 123 123 123	PROPERTY Pull Stock Investor Trust	FINANCE, LAND Last Biv Year Price sal Het C'erl Gr's July trment Trusts 135 145 148 10 5.1 Dec	Abirguarch 10p 288 Fow Abwood see Barr OctAithen Horre 14 Julylakroyd Smithers 433 Analgamated F. Inss. 12 Inty Do. 5% Cam Prf Cl 27 July Argyle Truss 20 July Argyle Truss 200 186	0 12.3 013.0 3.3 8.1 3.9 Mg	Eastern Rand Bracker 90c 178 26-3 1964c 1.1 \$\frac{1}{2}\$ \$\fra	a native table, with PTE ratio tessions provides, in open while it is no per while it is not per while it
INSURANCES INSURANCES Any Model Company of A State Company of State Company of Any Model Co	S. Sp	58 14.5 7.8 1.0 19.2 380 14.5 0.39 — 0.3 380 14.5 0.39 — 0.3 380 14.5 2.7 8.0 1.0 15.3 —	John Argyle Trust 200 20 Authority Inv. 200 10 Mor Barte In & Fin 200 10 Mor Barte In 10 Mor		Lesive 55	yeards, green capted sources, it kerrya, as lober in higher that previous, in 8 Rights itsus pending, it Earnings based on pre-immary Alguera- ided and yield exclude a special bayment, it indicated dividends it relates to previous deviated, it is since based on butters, annual ings, it Forecast dividend, cover based on previous year's named ings, it Forecast dividend, cover based on previous year's named ings, it Forecast dividend, cover based on previous year's named ings, it Forecast dividend, cover based on previous year's named ings, it forecast dividend to no 1000 times, which and yield based on merger terms, it quicked not 1000 times, which advances. Cover does not apply to special payment. A Net seed and the previous process of positions of the indicated and previous processors of positions of the indicated in the previous processors of the indicated and indicated indicated and indicated in
Apr 00 de 10 13cr Ces. \$3.00 558 17.38 00.11% 1.7 Mallam (Ves. D850) 5225 02.7 v2094 1.7 Ma Ja Se DeAmerican Gen Corp. \$127 03.2 8026.7 1.0 Dot. 60 part (Perido 10p. 258 2.3 0.0 4.1 Sign 13.3 2.1.8 5.9 Dot. 60 part (Perido 10p. 258 2.3 0.0 4.1 Sign 13.3 2.1.8 5.9 Dot. 60 part (Perido 10p. 258 2.3 0.0 4.1 Sign 13.3 1.3 2.3 5.9 Mov. 10 part (Perido 10p. 258 2.3 0.0 4.1 Sign 13.3 1.3 2.3 4.5 Mov. 10 part (Perido 10p. 258 2.3 0.0 June 10 part (Perido 10p. 258 2.3 0.0 Sign 13.3 1.3 2.3 2.3 Sign 13.3 3.5 Sign 13.3 3.5	r Est 50p. 270 (9.4 9.5 1.0 5.0(27.4) Aug. Mar. Anglo Am. Sec and	50 145 145 145 145 145 145 145 145 145 145	Nov Britamia Arrow	002	Far West Rand	widend and yield based on merger terms. It to widend and yield onclude excisit playment. By the content of the property of the special payment. A Met stand and yield. B Preference duvidend passed or deterred, introduced and yield. B Preference duvidend passed or deterred, introduced and wield based on pectus or other official estimates for 1983-84, 6 Assumed dividend yield on prospectus or other official estimates for 1944. K Fraures-based on prospectus or other official estimates for 1945-86. N Orwised and yield based maspectus or other official estimates for 1945-86. N Orwised based maspectus or other official estimates for 1985-86. N Orwised and based on prospectus or other official estimates for 1985-86. N Orwised and based on prospectus or other official estimates for 1985. P Fraures of on prospectus or other official estimates for 1985. P Fraures of on prospectus or other official estimates for 1985. P Fraures of on prospectus or other official estimates for 1985. P Fraures of on prospectus or other official estimates for 1985. P Fraures of one prospectus or other official estimates for 1985. P Fraures of one prospectus or other official estimates for 1985. P Fraures of one prospectus or other official estimates for 1985. P Fraures of one prospectus or other official estimates for 1985. P Fraures of one prospectus or other official estimates for 1985. P Fraures of the form of the f
Month March Marc	ESTABLE 30 MP 10/20 NP 1'4 unscirred france officers	1 164 5.11 (12% 1.1 5.0 — 356 2.7 17.0 (0.9 2.8) 0cc 0c	Flextech 10p	9.11 96.5 6.8 1.216.5 Feb. Au	Elishory R 10 221 0.7 (1)2 1.0 6.0 1.0 6.0 1.0 6.0 1.0 6.0 1.0 6.0 1.0 6.0 1.0 6.0 1.0 6.0	REGIONAL & IRISH STOCKS following it a selection of Regional and Irish stocks, the latter being
Nov. June[Minet Hidgs. 20p] 175 [14.5] 5.18] 2.2 [4.2]13.7] October [County Pro	Skolis	5p 20230A 0.912 52 100 M	mber Investment Co	0.23 0.35 23 1.735.9	Vaal Reefs S0c	Page
Mov. May Prudential 539 5.4 19.0 5.11 Jan Apully (Discon Dev C) Mov. May (Refuge 5p. 475 0.13 30.0 5.8	Corpus 92 782	63 2.7 11.83 1.0 4.1 May J 59 175 18.6 17.5 1.1 14.5 Now en 87 14.5 10.85 0.9 1.4 Jan 180 - Feb	No. 1 on March 101	2 16-7 0.2 4.5 2.413.2 May No. 9m13.8 1.06 0 5-2 0 November	FS Geduld 50c 5251214.5 ±0455c 2.4 ‡ Fin.	13° 97°02 694 +1 Jacob IW.8 R.1 50° +10° 7868 820° 694 +1 Unidare 766 +10° 7868 +3° 70° 694 +1 Unidare 7668 +3°
Jan. July Sim Alliance 389 14-5 184-10 5-3 Jan. Aug. Exist. Prop. Jan. Aug. Exist. Prop. Jan. Aug. Exist. Event Leve April 97abbo M EDR. 964 25.3 90.094 0.2 Cubber Evart Leve Rov. May Trust Internative 379 9.4 7.5 -5.6 — Rovember Five Oaks 184 July 2-9 5.6 — Rovember Five Oaks 184 July 2-9 5.6 — Rovember Five Oaks 185 July 2-9 5.6 — R	10	Apr June 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Do. Defd	5 9.4 Q74-4 4.0 9.6 — Anj. Ref. An	St. Helena R1	Hawker 5 idd 38 Victors 14
AND ANDRUG LA LIGHT FT AND AR AND A STANDARD CO. A.		110p. 86 9.4 0.85 \$ 1.4 May 1.45 May 1.	Azy Hewmarket 5 cts 214 Dec WOTL ASO.25	15.4 — — Jaq Jul 12.3 — — — May Oct 28.11 1.1311.6 3.2 3.4 Feb. Aug	\(\text{Ang. Am. Coal 50c.} \) \(\text{S17} \) \(\text{A6} \) \(\text{Coal 50c.} \) \(\text{S21} \) \(\text{S2} \) \(\t	16
- Maphant Hides, 10p. 1 33 - 4.0 3.7 3.810.1 Feb. Oct. Hasteness Doc. Jumblar & WA.T. 'A' 98 24.5 6.0 2.4 8.7(5.5) Jum. May Will Kland May New Boosty & Hawkes 320 30.4 5.0 1.1 6.0327 Jum. May Will Kland May Boosty & Hawkes 320 30.4 5.0 1.1 6.0327 Jum. May Will Kland May Boosty & Hawkes 320 30.4 5.0 1.1 6.0327 Jum. May Will Kland May Boosty & Hawkes 320 30.4 5.0 1.2 6.0327 Jum. May Will Kland May	10p	554 10 9.0 North 10 9.0 March 25 10 9.0 March	MaySE £41gpc Am	26.3 Q44% — 5.b — OCL Ma 4.6 d5.0 43.7 75.3.6 30.7 s1.25 1.8 1.649.2 November 30.1 1.24 1.0 2.65921 November 27.2 0.357.1 1.6 9.5 Mar Oc 30.4 1.617 8.010 3.5 pb Oct 1.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	For Gencor	Record Percolarum 35 Record Percolarum 35 Record Percolarum 35 Record Percolarum 36 Record 25 Record 26 Percolarum 36 Record 26 Percolarum 36 Record 26 Percolarum 37 Record 28 Percolarum 36 Record 26 Percolarum 36 Record 27 Percolarum 36 Record 26 Percolarum 36 Percol
Feb. JumeFairline Boats 7 to 25 18.4 121.75 2.2 5.6 10.9 May Nov. Kent 1 M.P. P.	peries	2-41. 36 — — Aov. 332 Do.7 11.5 1.0 4.9 9. 63 14.5 0.48 1.0 19.2 353 2.7 4.35 1.0 4.1 132 W123 0.85 12 0.7 Januar	Aug Pule Catto 10p 180 OIL AND Trans Oil Fiets 20p 16 Armit Pet 20p 76	GAS May No	CUO burg Cens. R2 673 13.71 (1450c) 2.214.2 1 GC)	Account
Pet. Survey arriver Solution 200	270 26.3 5.5 2.1 2.9 2.4 2.0 2.4 2.0 2.5 2.0 2.4 2.0 2.5 2.0 2.4 2.0 2.5 2.0 2.5	77 Do. 7 Do. 9 Do. 9 1.2 Nov. 241. 36 Do. 7 11.5 1.0 4.9 Do. 9 Do. 7 11.5 1.0 4.9 Do. 9 Do	### January 200	20.9 Nov. Wa	Dismond and Distinue	on Is
Apr. Dec lateriminister 10p	90 50	34 — — Jan 86m38 23 11 38 May 62 072 81.05 1.0 2.4	July Do. 8% Pl. E1 68 Oct@ritoli 240 WBrunswick AS1 32	18.6 5.6% y 11.9 — Apr. Oct half 3.3 10.0 3.1 6.0 7.0 Nov. Ma Half — — — May Sep	Do. 40cc Pl. R5. 775 2.7 Q240C u 12.1	surges throughout the United Kingdom for a fee of £700 per amoun for each security.

1/11

De world's Ros

general to

Swiff L. Salar Contract

State William Control

See of Decision 1989

petraline are

Barren Armen Cale and

The Constitution of the Co

, - r. ...

Arbus buni

 $V = \{1, \dots, 1\}$

The Contract

 $\{x,y,y\}$

many the w

17.

 $\chi_{K,K}$

Jun 1

lin:

draw. 1 2 2

Ning

 $\eta_{12} \cdot \eta_{1}$

 $p^{(1),0}$

 $H^{i,z}$

City η_{ow}

A general lack of direction

BY COLIN MILLHAM

The dellar drifted around moved to the minutes of the without showing any definite dir-day, although once again these chains was so thin that few traders were prepared any surprises.

moved to the minutes of the above the expected unchanged rise of 0.2 per cent, but was enough to create thoughts about possible inflationary pressure in the U.S. economy. that few traders were prepared any surprises.
to take new positions in a very nervous and volatile market.
Economic figures released above expectations. were generally inconclusive and failed to tospire any trend. A

revised rise of 7.6 per ceol in U.S. second quarter gross national product was so close to the earlier revision of 7.5 per cent that it was virtually failed to become excited by the August meeting of the Federal lower. There was also some disponent Market Commit' At 2.

No change io policy was expected, and attention then prices. This was only aligntly ignored, while the market also

OTHER CURRENCIES

THE POUND SPOT AND FORWARD

Argentine Peac | 722,22-93,08 | 71,10-71,16 | Austria | Austria | 1,5275-1,5295 | 1,1680-1,1095 | Beiglum | 1,5275-1,5295 | 1,1680-1,1095 | Beiglum | 1,5282 | 1,052 | 2,062 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 | 1,0610 |

" Selling rate.

EMS EUROPEAN CURRENCY UNIT RATES

45,1049 3,14002 2,23568 6,86472 2,52142 0,724832, 1384,12

Changes are for Ecu. therefore positive change denotes o weak currency. Adjustment calculated by Financial Times.

A rise of 2.2 per cent in July U.S. durable goods orders was above expectations but had little impact. The market had been vised fall of 3 per cent in June, but was more concerned about the hreakdown to arrive at the final figure. This showed that

very thin market. By this time sterling had move

On the other hand the high leve) of Federal funds in New York underpinned the dollar to some extent, and the economic expecting an increase of about statistics were not bad enough 1 per cent, compared with a re- to put any real downward pressure on the currency. Against this background the dollar showed signs of improvement at the beginning of the week, but then fell back before rallying to some extent nn Friday in a

towards the centre of the stage. London interest rates still łook competitive despite the recent cuts in base rates and the pound was also supported by firmer world oil prices. But as the week ended another national dock atrike was about to start, with possible damaging consequences for the UK economy.

£ in New York

Au2. 24 31,3065-8079 \$1,5115-8180 6,08-0,10 dis 0.09-0,11 dis 0.38-0,36 dis 0.35-0,38 dis

FORWARD RATES AGAINST STERLING 1 month 1,3075 2,7323 11,5323 3,1095 318,83 2 month 1.3143 5.6602 11.5964 3.0388 308.24 11.7440 2.9608 302_49

BANK OF ENGLAND TREASURY BILL TENDER Aug. 84 | Aug. 17 Aug. 24 | Aug. 17 | £100m £100m Top Accepted rate of discount. Average rate of discount Average rate of discount Average vield...... Bills on offer....... £100m Total of applications...... £444.13m Total allocated...... £100m Minimum accepted bid...... £97.61 Allotment at 9.98721 £444,13m 8,9567% 10,21% 297.525 Average yield...... Amount on offer at next tendor. £100m 8100m minimum level. 7% 70%

THE DOLLAR SPOT AND FORWARD

| 1,3055-1,3116 | 1,3060-1,3070 | 6,98-6,12c dis | -6,92 6,32-0,37dis | -1,8074 | 1,0725-1,0755 | 1,0735-1,0745 | 0,09-0,04c pm | 0,72 6,22-6,13pm | 0,725-1,0755 | 1,0735-1,0745 | 0,09-0,04c pm | 0,72 6,22-6,13pm | 0,725-1,0755 | 1,0735-1,0745 | 0,09-0,04c pm | 0,72 6,22-6,13pm | 0,735-1,2980 | 0,44-0,87c dis | 0,57-5,2360-3,2400 | 1,56-1,53c pm | 0,57,21-2,20m | p.s. mombs p.s.

-6.92 6.22-0.37dis -1.06
0.72 6.22-0.13pm 0.86
-0.57 0.08-0.12die -6.32
5.72 4.35-4.49pm 0.57
6.62 12-10pm 0.86
8.54 4.55-4.50pm 6.30
-25.62 425-1150dis -2.9.86
-2.12 99-104dis -2.31
-1.02 1.25-1.75dls -0.72
0.61 6.90-0.70pm 6.36
-1.52 2.85-3.35dis -1.49
6.43 2.34-3.29pm 6.51

3.741₃-3,771₂ 2316-2360 314-312 4.221₄-4,261₄ 10,79-16,90 163-206 209-218 10.84-10,25 CURRENCY MOVEMENTS CURRENCY RATES

77.8 136.1 90.6 114.t 90.0 77.6 128.8 143.1 113.4 47.6 106.4 Morgeo Guaranty changes: average 1980-1982-100, 2enk of England ladex (base average 1975-100). * CS/SSR rate for August 23: 1.32298

EXCHANGE CROSS RATES

central rates

44.908 2.14104 2.24184 2.87456 2.52595

Selgian Franc Oanish Krane German O-Mork Fronch Franc Dutch Guilder

Aug. 24	Pound St'rling	U.S. Dollar	Soutsche m'i	Carpar os (Yen	FrenchFranc	Swiss Franc	Dutch Guild	Italian Lira	Canada Dollar	Belgian Franc
Pound Starling	0,765	1,307	3,750	815,0	11,53	3,135	4,230	2321.	1,695	75. 70
U.S. Dollar		1.	2,873	241,1	2,822	2,393	3,232	1778.	1,296	07.98
Reutschemark	0.267	0.348	11,90	84,00	3.075	0,233	1.128	612,9	0,452	20.12
Japanese Yon 1,000	3,175	4.148		1000,	36,60	8,921	13,43	7668,	3,381	840,3
French Franc 10	0,207	1.133	3,262	273,2	10.	2.710	3,669	2013.	1,470	05,65
Swiss Franc	0.320	0.412	1,200	100,8	3.690	1,	1,554	742.7	0,642	24,22
Dutch Guilder	0,236	0,309	0,867	74.47	2.722	0,732	1.	548,7	0,401	17.90
Italian Lira t,000	5,431	0,563	1,216	136.7	4.968	1,346	1.822	1000,	0,730	38.22 30
anadian Dollar	0,690	0.771	8,212	185,2	0,802	1.844	2,496	1369,	2.232	44,66
Belgian Franc 100	1,321	1.720	4,954	412,1	15,23	4,128	0,588	3066,		100,

98,-3036.50 70,00-77.50 13.65-13.79 11.48-11.01 3.7412-3.7716

EURO-CURRENCY INTEREST RATES (Market closing rates)

Aug. 24	Sterling	U.S. Dollar	Canadian Dollar	Butch Guilder	Swise Franc	D-mark	French Franc	Italian Lira	Belgia Conv.	n Franc Fin.	Yen	Danish Krone
Short term	10:s-1t 10% 11 10% 11%	11% 1113 t1 % 111% 11 % ttik ttik 1t % 12 % t8 % 12 % 18 2	11 'a-1214 12 · 12 · 12 · 13 12 · 12 · 14	51: 6 01: 6 6 61g 6: 61: 01: 61: 01: 01:	216 216 216 216 616 55 016 514 5 76 57 5 016	014 559 514 519 014 055 016 0 016 0	t0:6:t116 1676:1116 11:4:11:5 11:5-11:5 12:12:4 18:4:15	1314-1414 1114-1234 1339-3318 1418-1450 10-1019 1550-1618	11½-12 114-11¾ 11-11½ 11-11½ 11-11½ 11½-18	1114-1112 1114-1158 1118-1158 11-1114 11-1114 1114-1138	014-014 613-614 613-034 036-613- 514-613-	104-11 1634-11 114-11 114-11 114-18 1112-13

Asian 5 (closing rates in Oingaporo): Short-term 11½-11½ per cont; seven days 11½-11½ per cent; one month 11½-11½ per cent; three months 11½-11½-11½-11½ per cent; six months 12½-12½-per cent; one years 13½-13½ per cent; six months 12½-12½-per cent; one years 13½-13½-per cent; five years 13½-13½-per cent nominal closing rates. Short-term rates ors call for U.O. dellars and Japanese yen; others two days' notice.

MONEY MARKETS -

Change in sentiment

dock strike had been expected to have a worse impact on exports hare a worse impact on exports
than proved to be the case.
Another factor in market
psychology was the very recent
cuts to 10; per cent from 12 per
cent in base rates and the
obvious wish of the authorities
to get rates lower if possible. It
was reasoned that in the present
circumstances the Bank of engumstances the Bank of England was more likely to let

FT LONDON INTERBANK FIXING

ISHOON INTERBANK FIXING (1t.00 a.m. August 24 5 months U.S. dollar

bld 11 13 16 | offet 11 15-16 S months U.S. deliars

offer 12 5, 16 The fixing rates are the anthmatic meens, rounded to the nearest one sixteenth, of the bid and offered rates five seference banks at 11 nm each working day. The banks at National Westminster Bank, Bank of Takyo, Scutsche Bank, Banque Nationals do Paira and Margan Guaranty Trust.

Change in	sentiment		
Sentiment changed quite dramatically on the London money market last week. Interbank interest rates showed a slightly reversed curve as the week began, and were generally hovering around 10! per cent, but by Friday the rate structure had changed to a flat level from one-month to sne-year at about 11 per cent. Rates began to move up as optimism about another liminient cut in clearing bank base rates evaporated. A localing	sterling take the strain on the exchanges if the dock strike proved protracted than leap to its defence with another round of interest rate jumps. This view was reinforced by the relative softness of the dollar and sterling's present ability to stay above the \$1.30 level, while the trade-weighted index has fallen by only 0.7 per cent during the month to 77.8. MONEY RATES	the July FOMC may have in-	released uotil after the close of London trading on Friday. Elsewbere interest rates wer fairly steady. As expected, the Bundesbank council teft policies unchanged at last week's regular meeting, and the Bank of Franct kept its money market intervention rate at 11½ per cent when buying first category paper of
national dock strike added to market depression, and rales	Aug. 24 Frankful	t; Parls Zurich Amst'dam!	Tokyo Milan Brussels Dublin
moved still higher, before peak- ing at about 11 per cent. Although the market was ner- vous about the general situation there was ao sign of panic Better than expected July UK	Overnight	tlis 114 4:0-5 6-6:6 63	16620 1614-1656 10.15 1214-1814 226-187, 1214-1814 1256-187, 1214-1814, 1214-1814 1256-187, 1214-1814 1256-187, 1214-1814 1256-187, 1214-1814 1256-187, 1214-1814 1256-187, 1214-1814, 1214-1814, 1214-1814, 1214-1814, 1214-1814, 1214-1814, 1214-1814, 1214-1814, 1214-1814, 1214-1814, 1214-1814, 1214-1814, 1214-1814, 1214-1814,
trade figures helped the market keep its corve, since the previous dock strike had been expected to	LONDON MONEY PATES	Discount House	one Deposit and Dill Die

Discount Houses Deposit and Bill Rates LONDON MONEY RATES Bank IBUy) 11 144 151 1019 15

	One year:				_	•		_
		Local Aul h. negotiable bonds	Authority	Finance House Deposits	8 Cert of Daposits	20R Linked Deposits	EkCU Lined Deposits	
	One month	11%-11	_	10 ;}	11.5-11.8		9,5-914	•
	Two months	114-t5:	· –	10 1	11,35-11,65:	24-10	2,1-23,	
	Three months	114-104	_	104	11,8-11,7	2 13 -1015	9-13-61a	
	Six months	10 8 10 2	_	10-	11.63-11.95	104-103	516-101g	
	Nine months	11-105u			12.0-12.2		i - 19 4	
,	Ппе уелг	11-10 _N	_	10,	12.2-12.4	101-101-	10군-10년	
	Two years		11fg					
	Three years		113e	· _	!	_	_	
	Four years		1156	! !] _	
	Five years		113	' _ '		_	1 —	

ECGO Finad Rate Except Finance Ochams IV: Average Rate of Interest period July 8 to August 7 1994 (inclusive): 11.781 per cent. éccal authoritée and finance houses acron days' notice, others savan days' fixed. Finance Houses Base Rate (authoritée de l'entre Houses Association): 10°-, ger cent fram August 7 1994. Landon and Scottes Clessing 2 2nk Rates ler lending 10°-, per cent. froncert (authoritée): 10°-, per cent. froncert (authoritée): 10°-, per cent. froncert Bills: Average tender retux o' discount 5 257 per cent. Certificates of Tax Osposit (Sarias 6). Osposit: 10°-000 con over held under one manth 11 cercuri: ons-thies menths 10°-, per cent; thiese-six menths 10°-, per cent: incert Undes £100.000 10°-, our cent Incert Landon 10°-, per cent: under £2 menths 10°-, per cent Undes £100.000 10°-, our cent Incert Landon 10°-, per cent: under £2 menths 10°-, per cent Undes £100.000 10°-, our cent Incert Landon 10°-, per cent Undes £100.000 10°-, our cent Incert Landon 10°-, per cent Undes £100.000 10°-, our cent Incert Landon 10°-, per cent Undes £100.000 10°-, our cent Incert Landon 10°-, per cent Undes £100.000 10°-, our cent Incert Landon 10°-, per cent Undes £100.000 10°-, our cent Incert Landon 10°-, per cent Undes £100.000 10°-, our cent Incert Landon 10°-, per cent Undes £100.000 10°-, per cent Und

MONEY RATES NEW YORK (Lunchtime) 2raker loan rate 121-121 Treasury Bills 5na manth ... Two month Treasury Bonds

LONDON S% \$100,000 32nds of 100% Close High 66-05 65-07 65-16 — 64-30 — urns 606 (869) 5 day's open int THREE-MONTH EURODOLLAR 66-02 Close High Low Prev Sept 88.43 88.44 88.42 88.41 Dec 80.06 88.09 88.00 88.03 March 87.72 87.77 87.72 87.72 June 87.52 87.57 87.48 87.49 Sept B7.31 — 87.28 Est volume 1.734 (2,247) Previous doy's open int 18.001 (13.120) U.S. TREASURY BONDS \$100,000 32nds of 100% THREE-MONTH OTERLING DEPOOIT 250,000 points of 100% Littest High 65-19 65-28 64-29 65-06 64-11 64-18 63-29 64-04 63-17 63-12 63-06 63-11 62-31 63-00 Close High Low Prov Sept 83.57 88.63 89.66 89.63 Dec 83.64 89.66 89.57 89.85 March* 89.46 88.45 88.42 89.49 June* 89.20 89.22 88.20 88.23 Est volume 1,207 (2,333) Previous day's open int 7,944 (6,514) * 5500,000 points al 100% Sept Dec March June Sept Dec March June Sept Dec March 62-11 62-11 --62-10 20-YEAR 12% NOTISNAL GILT Close High Low Prev 105-20 105-29 105-12 105-28 104-25 104-30 104-12 105-01 104-05 104-05 103-30 104-12 103-22 — 103-29 U.S. TREASURY 2ILLS (IMM) 51ra Juno 103-22 — 103-29 Est volume 1,157 (2,558) Pravious day's open int 3,207 (3,143) Basis quote (clean cash price of 131% DEPOSIT (IMM) \$1ra points of Fligh Low Prev 88.52 88.46 88.55 88.16 88.00 85.18 87.76 87.74 67.85 87.50 87.47 87.61 DEUTSCHE MARK2 DM 125,000 0 ger DM Close High Low Prev Sept 0.3492 6.3496 6.3492 0.3499 Dec 0.3546 — — 0.3552 Est volume 12 (14) Previous day's open int 310 (312) Sept 0.4198 High Lew Prev Sept 0.4198 — 0.4199 Dec 6.4259 — 6.4272 Est volume nil (414) Previous day's open int 1,657 (2,053) High Low Prev
- 0.4199
- 6.4272 STERLING (IMM) Se per E Glose High Low Prev
Sept 0.4159 — 0.4162
Dec 6.4212 — 0.4220
Est volume nil (3)
Pravious day's open int 187 (163) GNMA (CBT) 2% \$100,000 32nds o 66-21 66-21 66-01 65-04 64-12 63-24 63-07 Close High Sept 108.30 108.35 Dec 108.30 — March 108.30 — Est volum day's open in Low Prev 107.40 107.70 — 107.80 — 107.80 WEEKLY CHANGE IN WORLD INTEREST RATES

FINANCIAL FUTURES

One month Sills Three month Bills 6,22122 6,38126 BRUSSELS MILAN AMSTERDAM 1234 131₆

London—bend 1 bills mature in up to 14 days, band 2 bills 15 to 33 days, and bend 3 bills 34 to 63 days, Rates quoted represent Bank of England buying exsoling rates with the money market, in other centres rates are generally deposit rates in the donestic access market, and their respective thanges during the week. Band 4 bills 10%.

Unch'd 3 Mth, CD Unch'd FRANKFURT Unch'd Lombard

PARI2

LONDON
Base rates
7 day interbank
3 mth interbank
Treasury Bill Tender
Band 1 Bills
Band 3 Bille
Band 3 Bille
1 Mith. Breasury Billa
1 Mith. Benk Bills
3 Mth. Bank Bills

TOKYO

| Change | NEW YORK | NEW YORK | Prime rates | 11 to | 11 to | 12 to | 13 to | 14 to |

EUROPEAN OPTIONS EXCHANGE Vol. | Last | Vol. | Last | Stock **58** --0.50 47.57 SILVER C SILVER P SILVER P SIFL G SIFL C SIFL P SIFL P SIFL P SIFL P SIFL P 10 B 3.80 B 3.30 1.50 0.60 1.50 2325.3 F.120.50 F,195.50 3<u>1</u> 2,50 A 23 4,20 138 24 86 14,50 581 3,80 752 2,50 130 0,90 254 3,20 111 5,90 156 11,50 156 11,50 156 12,50 156 12,50 150 10,10 43 3,7 F.95.30 18.80 11.50 7.84 6,30 5.60 = 14 A 3.50 51 P.56.60 1.50 F.159.50 F.56.70 147 1 4,20 9 F.154.50 F.225 14.50 4.50 350 8 4.80 2.60 3.50 500 F.50 F. 162.50 13 11.90 13 6.70 TOTEL VOLUME IN CONTRACTS: 14,490 S=Bld C=Cali

HOME COMPUTERS FOR THE BUSINESSMAN

The Financial Times proposes to publish a servey on Home Comers for the Businessman on the 1st October.

JACK CHENEY, Financial Times, Bracken House, 10 Cannon Street, London EC4P 4BY Tel No: 01-248 8000 ext 3389

INVEST IN 50,000 BETTER TOMORROWS!

MULTIPLE SCLEROSIS - the cause and cure of which are still unknown - HELP US SRING THEM RELIEF AND NOPE.

We need your donation to enable on to continue our work for the CARE and WELFARE OF MULTIPLE SCLEROSIS outlorers and to continue our commitment to find the cause and cure of MULTIPLE SCLEROSIS through



Please help - Send a donation today to: The Multiple Science's Society of G.B. and N.I.
286 Munster Road
Fulham, London SW6 68E

2 WORLD VALUE OF THE POUND

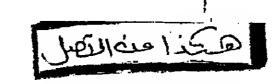
-0.09 +6.06 +0.05

The table below gives the latest available rate of exchange for the pound against various currencies on August 24, 1984. In some cases rate is nominal. Market rates are the average of buying and selling rates except where they are shown to be otherwise. In some cases market rates have been calculated from those of foreign currencies to which they are tied.

Abbreviations: (A) approximate rate, no direct quotation available; (F) free rate; (P) based on U.S. dollar parities and going sterling-dollar rates; (T) tourist rate; (Bas) basic rate; (bg) buying rate; (Bk) bankers' rates; (cn) commercial rate; (ch) convertible rate; (fu) financial rate; (exC) exchange certificate rate; (no non-commercial rate; (nom) nominal; (o) official rate; (sg) selling rate.

Bolivian Bolivian Peace 1,013.0 13 13 13 13 13 13 13 1	COUNTRY	CURRENCY	VALUE OF & STERLING	COUNTRY	CURRENCY	VALUE OF £ STERLING	COUNTRY	OURRENCY	VALUE OF £ STERLING
Angolan. — Symuta Previtt. — (Spanish Previtt.	Afghanistan	Afghani	99.00 10,09	Greenland	Danish Kroner E. Caribbean \$	13.64 3.54	Phillopines	Philippine Desc	exe(A)4,858,11 23,25
Spenister Poeter Call 2, 50	Algoria	Dinar	(A) 5.5500	Guadaloupo	Local Franc	11.03	Pitcairn Islands	E Starting	_
Agentina. State of the company of th	Andorra	Spanish Poseta	214.50	Guatemaia	Quetzal	1.3063			
Augstralia. Naur Peace 86.0 Guyannes 9 A.100 Guyannes 1 A.100	Angola,,	KWanza	(CM) 43,7625	Guinea	Syll	51,82 102.33	Portugal	Portuguese Facurio	
Australia - Buthiling				Guyana	Guyanese 5	4,810	Puerto Rico	U.S. #	1.5065
Austria. Colining School Colin						0.5825	Qutar	Qafari Rval	4.732
Bahantal. Bab. Dollar 1,0006 Bahantal. Bab. Dollar 1,0006 Bahantal. 1,0006	Austria	Schilling	e0.370	Honduras	Lempira	2,65			
Selfram Damp Proceds Selfram	Rahamse	Bo Doller	1,3065	Hong Kong	HJK. 6	10,205			11.58 (Mm)6.43
Barghalosah Takk Sarbados	Bahrain	Dinar	5,4945	Hungary	Forint	65.21#			(N/C)15,42
Bolglum	Bangladesh	Spa. Pesera Taka	32. 95	iceland	f. Krona	41,1370			132,51
Edit	Berbados	Barbados \$	2,013	India	Ind. Rupee	10.10	St. Christopher	E. Caribbean \$	3.54
Berning	Belgium	8. Franc	(fn) 76.40	inconessa	Rial	118.70(sg)			2.84
Bolivian Bolivian Peace 1,013.0 13 13 13 13 13 13 13 1	Bolize	S.6,	2,013						11.53
Bolivian Bolivian Peace 1,013.0 13 13 13 13 13 13 13 1	Bermuda	Bda 3	1.3065	Irish Republic	Irish &	1.2175	Salvador El	ISSE El Salvador	5,54
Setzwana	Dayout	Indian Kupee	15.10	[Snekel	415.0	Samos American	U.S. 3	1.3065
Setzwana	Solivia	Bolivian Peso	6,532.5 (14)	Ivory Coast	C.F.A. Franc	373.3	Sao Tome & Prin	Doors Life	2,321 58.53
Service Control Franc Control Contro	Botswana	Pula	1.7755						-4,00
Brunel	Bourkina Faseo	C.F.A. Franc	570.8	Janaron	Yen		Saudi Arabia	Saudi Ryai .	4.62378
Bulgaria Lev 1.3554 Surriad Franc 156.415 Surriad Franc	8rit Virgin Islea	U.2. \$	1,3065	Jordan	Jordanian Dinar	0,507	Seychelles	8. Rupee	9.18(00)
Burrind	Brunel	Srunci \$	2,809	Kampuches	Riel	N/A	Sierra Leone	Leone Singapore f	(0)5,28
Carnetron	Bulgaria	Lev	1.3554	Капуа	Kenya Shilling	12.12	Sciomon islands	Solomon la. \$	1.6940
Carnetron	Burundi	Burundi Franc		Korea Nth)	Won	1.07(1)	Somali Republic	Somali Shilling	22.95
Canada Natural Canada Natural Cape Vertice is Cape Vertice i	Cameroon	C.F.A. Franc	576.5	Koreaisthi	. Woff Kuwaiti Dinat	1,060,70	South Africa	Rand	2.02876
Capt	Canada	Canadian 8	1.080				Sponish ports in	- 0-012	•
Canta Afr. Republic O.F.A. Franc O76.5 Chad. G.F.A. Franc O76.5 Chad. G.F.A. Franc O76.5 Children Peace O76.5 Children Peace O76.5 O76.76 Children Peace O76.76	Cape Verde is	Cape V. Escudo	104.8	LBOS	. NeW Kip Lebanese £	8.4740	Sri Lanka	8. L. Runne	214,50 E0 06
Cart Afr. Republic C.F.A. Franc C76.5 C7	Cayman is ande	Cay. Is. 3	1.08873	Lesotho	Majuti	2.02875	2udan Republic	Sudan £ (u) .	
China Ghilean Peac 121.36 Licohenstein Swite Franc 79.75 Sweden S. Krona 10.86 Colon Col. Peac Col	Cent.Afr. Republic	C.F.A. Franc	076.5	Liboria	Liberian ¢	1.3065 0.3868	Surinem	S. Guilder	8.3386
China	Chile	Ghilean Peso	121.38	5 Liechenstein	Swise Frane	3.1250	Sweden	S. Krope	2.02875
Compo Sazari	Colombia	Renminbi Yuan	3,1463 (E) 135 03	1 -			SWITZERIAND	Swiss Franc	3,1250
Costs Rica. Colon	Comoro islands	. C.F.A. Franc	373.5	Macao	Pataca		SYTIA	Syrian £	. (A) (T) 10,0 . 1(0)(0,5,20
Cuba Cyprus Cyp	Congo (Brazavi ile	C.F.A. Franc		Majagasy Republic	MG France	775.5			
16.05 (9) Mairia 16.05 (Coets Rica	Colon		Malawi	Kwacha.	1.88	Tanzania	Tag. Shilling	51,12 22,67
16.05 (9) Mairia 16.05 (Çuba	Cuban Peso	0.778				Thailand	Baht	20.97
16.05 (9) Mairia 16.05 (Cyprus	. Cyprus &	(lcom: 8.80	Maldive Islands	Ruflyaa Mail Franc	9,8640 1,126	Tonga Islands	Pa'anga	1_52B5
Denmark	Czechoslovakia,	Koruna	16.05/91	Mali Republic	C.F.A. Franc	376.5	Trinkdad	Trinidad & Tob #	X-1256
Dominidan Repub Dominidan Peso (7) 3.5156 (7) 3.5155 (7) 3.5	Denmark	Danish Kroner	1764	Maita	Maltese £	0.6070	Turkey	Tunislan Dinar	1,0250 (ag)
Dominidan Repub Dominidan Peso (7) 3.5156 (7) 3.5155 (7) 3.5	D)ibouti	Olibouti Franc	225 (sg)	Mauritania	Ruguiya	87.12	UTKE 42 C-MCCOL	U.S. A	1,8055
College	Dominica	E. Canobean £	(D) 1.3060	Mauritiug	M. Rupee	18,37		WINDSHIELD B	1.5285
Egypt	оонинсал керир	Dôwniliogu Lesó	(1) O'S TAG			} (C)228.35	Hounda	Hannel of the	
Egyptian	Ecuador,	. Jucre	(F) 126.27	Monaco	Evenah Crane	11,33	Alexander wine in	offsword symilos	489,0
El Falvador	Epypt	Envotian & ·	1.0875 116	E MORGOIA	Tugrik	4,56 (II)	United States	U.S. Dollar	1.3065
Ethiopia Birr (F) 2.3950 (F) 2.39	El Salvador	Ccion	(1.4765 (8) 3.27			3,54	Utd. Arab Emistes	U.A.E. Distance	74,44
Paikland Isanda	Equatorial Guinea	Ekuelo	422	MOZALII DIQUE	Medcar	(A) 55.68			
Farce Islands — Danish Kroner 13.64 1.4580 1.4580 7.882 7.882 Netherlands. — Caulider Now Zealand. — N.Z. Dollar 15.09 1.5	Ethiopia	. Ethiopian Birr	(P) 2.3950	NAUTHORE	S.A. Rand		Vanuatu	See Bourking Fased	100.0
Parce Stands Califor 13.64 1.4580 1.	Falkland Islands	. Falkland Is. 2	1.0	Nepsi	. Napalese Rupes	1,5200 21.52	Vaticaл	Italian Lica	2 321
France France Franc 570.6 French Gulana Local Franc 570.6 French Gulana Local Franc 11.55 French Paolffic Is. C.F.P. Franc 2051sg) French Paolffic Is. C.F.P. Franc 2051sg) Gaboh	Farce Islands	- Danish Kroner	13.64	Netherlands	Guilder	4.23			(4) 5.62
France France Franc 570.6 French Gulana Local Franc 570.6 French Gulana Local Franc 11.55 French Paolffic Is. C.F.P. Franc 2051sg) French Paolffic Is. C.F.P. Franc 2051sg) Gaboh	Finland	. Markica	7.882	Now Zealand	antilian Guider N.Z. Dollar	2.5386 2.61			(6) 9,80 (6) 18 93
French Gulana Local Franc 11.55 Nigeria Naira 1.061402 (sg) Western Samoa Samoan Taia (A)271	France	French Franc		Nicaragua	Cordoba	15.09	Victnam	Dong	(O) 15.37
Caboh	French City In M.	. C.F.A. Franc							1,3065
Gabon	French Paolilo Sa.	. C.F.P. Franc	205 (sq)	Norway	Norwegian Krone	1,U61402(ag)	Western Samoa	Samoan Tala	(A)271
Carmany East	G&DON	. G.F.A. Franc	675,5	I 5man Sul'ate of	. Riai Omani	0.45	Yeman (Nth)	Qual	
Onana	Garmany (East)	. vacisi . Ostmark	5.00 5.75	<i>E POKIS</i> CE/I	Pakistan Rupee	13.25	· • • • • • • • • • • • • • • • • • • •	N. YAMAR Mass	7.56(9g) (A)0.4485
Onana 40,90425 Gibraltar 1.0 Gerooe 536,04 (11) Zambia Kwacha 2,38 Greooe Zimbabwe Zimbabwe 2,88	Germany (West)	. Dautsche Mark	3,75	Papua N. Guinea	Kina	1.1980	Bonst (0	New Y DINAP	205.02
Grecoe	Gibraltar	. Gibraitra £		ŧ.		(314.16 (10)	Zaire Repulic	Zaire	48.46
	Grecos	. Drachma	151.00	1		484,40 (12)			2,38
* Rate is the transfer market (controlled). ## Now one official rate. () 2858d on Order rates against Russian rouble. (1) Escapial rate and one official rate.									1,69

• Rate is the transfer market (controlled). #1 Now one official rate. (||) 2ssed on gross rates against Russian rouble. (1) Essential goods. (2) Preferential rate for public socior debt and assential imports. (5) Preferential rate. (5) Preferential rate. (6) Preferential rate. (7) Perelici mate. (8) Rate for remittences of manay abroad and loreign leavel. (7) Perelici mate. (3) Rate for remittences al fersign currency by Ecystations warking abroad and tourists. (12) Rate for imports. (13) Essential Imports. (14) Non-assential imports. (15) Nearly all business.



10 Julius 58 188

TER TOMORROW

1.0

- G F and KL

Table 1. Totally

A TALL MAY

FINANCIAL TIMES SURVEY

Aerospace

The world's aerospace industries are slowly emerging from the recession, with cantious optimism for the immediate future. For the longer-term, the outlook is brighter, with hopes of a sustained volume of business to the end of the century that could be worth as much as \$1,400 bn.

THE WORLD's aerospace industries will go to this year's farnborough international Air Show conscious that the recession which severely affected a substantial sector of their business—commercial aviation—now appears to be passing. There have been encouraging signs in recent months of both a growth in world air travel, reflected in a so far slow, but nevertheless unmistakeable, increase in new orders for commercial jet transports to revive in more orders for commercial jet transports to revive accountries of all kinds, guided weapons and technology across a wide range of industrial and scientific disciplines, and the increasing awareness of and interest in service, and the additional spending on the infrastructure of aerospace matters of all kinds of aerospace (such as the pro-

flagging production lines.

At the same time, the steady volume of military aviation and guided wespons business that sustained many of those industries in the trough of the stringer recession also remains airliner recession also remains be syant, while demand in the space sector for satellites and ancillary equipment of all kinds is accelerating rapidly.

There is therefore a new air of confidence in world acro-

By Michael Donne AEROSPACE CORRESPONDENT

in terms of the number of exhibitors and in the size of the static and equipment

Short-medium range twin aisle

Although the number of space, reflected in the fact that entirely new aircraft may be the fact that this year's Farnboroogh air small by comparison with show will be the higgest interprevious years, the significance widely, and are inevitably national air show yet held, both of Farnborough for the world's broadly based, but the most

Airbus business outlook 1984-2002

Short-medium range single aisle

3529 A/C (\$89bn)

aerospace matters of all kinds of aerospace (such as the profrom the countries of the vision of new airports, new facdeveloping world.

The confidence so far being shown is cautious, for the recovery is only a few months old.

But, if all the ventures are the covery is only a few months old.

The confidence so far being shown is cautious, for the recovery is only a few months old.

The covery is only a few months old. But, if all the ventures now planned for the future come to fruition—civil, military and in space—the world's overall aerospace activity seems likely remaining years of this century.

1149A/C (\$127bn)

too, analysis of the overall situa-tion shows that the picture is looking much brighter. Over the to expand considerably over the air traffic world-wide was up remaining years of this century, substantially over the corresponding period last year and the signs are that in the years ahead, there will he an average annual growth of at least 5 per cent, and possibly approaching 7 per cent. While this is well below the growth rates of 10 per cent or more experienced in the late 1970s, It is still sufficient to ensure that world air traffic will double by the early 1990s, and it is already imposing recewed pressures on airport anthorities to create more capacity, or at least to enable better use to be made of available runways and terminals where additional capacity is not possible for either cost, space or environmental reasons—the latter now a particularly severe constraint, especially in the UK, Western Europe and the U.S.

The airlines themselves are also now in a far better position time past is reflected in figures to cope with their problems from Airbus, Boeing and



Artist's impression of how the proposed new European Fighter Aircraft (EFA) may look. Efforts are now being made by the UK, France, West Germany, Italy and Spain to reach agreement on a major multi-billion pounds programme to develop this new combat aircraft for the carly 1930s, to replace agoing Jaguar fighters and other types in European air forces

than they were two to three McDonnell Douglas, all of whom start to move through the pro-years ago. Managements, long so far this year have ingged duction phase. accustomed to profits and substantial increases in sales Nobody among the manufac-growth, learned the hard way compared with the same period turers is expecting an early how to cope with crisis, losses and cut-backs, and although some airlines have gone out of husiness, the remainder, through extensive retrenchment programmes, are leaner, tougher and more competitive than they were. They need to be, for their difficulties are not yet over. Increased competition, and pressures for deregulation In the air transport industry, elsewhere than in the U.S., where it has been a feature of the past few years, are growing.

Decisions

In the UK alone, a major reconstruction of civil aviation is in progress, with the impend-ing privatisation of British Airways, some reallocation of routes to the independent air-lines planned, and major declsions on airports policy awaited (such as development of Stansted or a fifth terminal at Heathrow). Coupled with the pressures

for more competition on Euro-pean and long-haul air routes from UK airlines, these measures seem likely in the long term to strengthen the UK airline industry, and will eventually lead to increased orders for new equipment. That the aircraft manufacturers are also doing better than for some considerable

compared with the same period of last year. While some of this improvement is undeniably economic climate among the airlines, it is being led by two other more significant factors.

fleets are ageing and re-equipment decisions that were deferred hecause of the recession cannot be deferred any longer if the airlines involved wish to remain competitive in the mid- to late-1980s. At the

It may be some time before this improved huying rate among the airlines is reflected in significantly improved production rates among the manu-facturers. The improvement is coming none to soon, however, for some airliner manufac-turers' production rates have already 1990s, whereas Pratt and Whliney of the U.S. sees an eventual market by 1994 of about 4,200 aircraft, worth around \$178hm.

Nobody among the manufacturers is expecting an early hoom in demand. Rather, a steady ioflow of new orders attributable to the improving seems likely, if only because and the current bigh interest One is that many existing sizes of such individual orders

Nevertheless, although the various maoufacturers' forecasts differ in detail, they are same time, the imminence of new, more stringent government-imposed noise regulations in the U.S. and elsewhere from the end of this year through the 1980s will increasingly ohlige the airlines, however reluctantly, to replace their fleets.

casts differ in detail, they are all confident that through the rest of this century, the overall demand for new commercial jet airliners will remain high. Airhus, for example, sees a market up to the eod of the ceotury of well over 7,000 new aircraft, worth some \$450bn. Boeing sets its forecast lower. in terms of time and moneyahout \$172hn for ahout 3,850 aircraft up to 1995. Rolls-Royce sees some \$50ho being spent or up to about 5,000 aircraft hy

already had to be cut for 1985
because of the paucity of new orders last year and earlier. for some 28,500 general aviation it will probably not be much hefore 1986 that those rates will rise again, as the orders craft for leisure as well as husinow coming on to the books ness and executive aviation. CONTINUED ON PAGE 8

CONTENTS

Manufacturing

Civil airliners: signs of

pick-up to orders Military aircraft: strong demand expected to New materials: wide ranging development continues New techniques: computers lead race for supremacy Helicopters: market sustained by military orders Missiles: attracting everincreasing resources ... Engines: fierce competition for new orders ... Space ventures: Debate over Europe's role ...

Air travel

Airlines: rein on costs as prosperity returns ... 10 Finance: leasing schemes for new fleets 10 Airports: Growth forecasts raised as demond streogthens 11 Business avlation: volume of deliveries cut 11

The world makers

Omited States	12
Canada	12
Soviet Union	13
The UK	14
France	15
Belgium	15
Netherlands	16
Italy	16
Spain	16
West Germany	17
Sweden	17
Israel	18
Greece	18
Iodonesla	18
Brazil	19
Japan	19
Australia	20
India	20
Editorial production: Mich	iael
Strutt and Arthur Dewson	

I he Jewels in our Crown.

To call the Westland 30 a jewel is no mere flight of fancy. It is quite simply the finest, most versatile helicopter in its class.

It has been highly successful in the UK. It's now making inroads into the notoriously difficult American market.

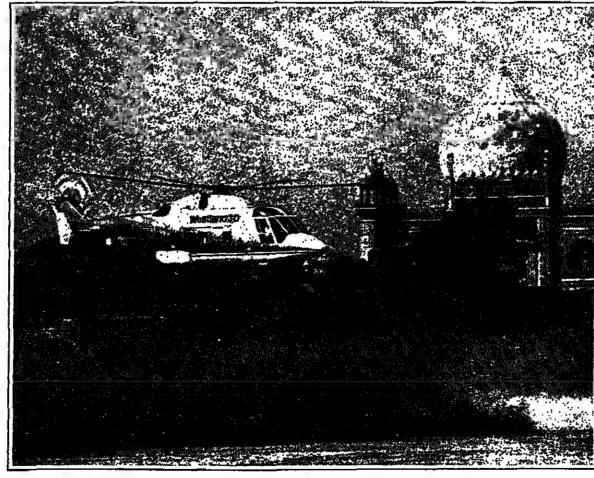
And today, even as you read this, it is the subject of intensive negotiations with the Indian government as well as many other customers throughout the world.

It's another jewel in the Westland crown. But only one of many.

EH101 The world's newest helicopter being developed by Agusta of Italy and Westland of Great Britain backed by both governments with both military and civil versions in its first generation.

LYNX 3 An effective, heavily armed multi-mission helicopter for maritime and army roles - as an antisubmarine helicopter packing a heavy punch against surface ships, the battle proven Lynx can operate from small ships in the roughest weather, day or night. In the army role as a dedicated tank fighter Lynx is one of the most heavily armed helicopters in the Western world.

SEA KING Versatile, capable and effective, bought by nine countries, flown in many different roles and equipped with the most advanced



anti-submarine weapon system.

A20 Our new A20 trainer aircraft. a joint venture with the Australian Aircraft Corporation, is the only turbo-prop trainer specifically designed to fulfil the needs of the world's Air Forces, well into the 1990s and beyond.

API-88 In the civil field, the Westland API-88 can carry up to 100 passengers in air conditioned comfort, and is already winning export orders for Britain.

BH.7 Since building the world's first hovercraft, Westland have continued developing air cushion transport. The BH.7 military hovercraft brings a new level of mobility and speed to the naval transport and fighting ability. And as a minesweeper, it is invulnerable and unbeatable.

LONG LIFE HELICOPTER BLADES A major advance in international helicopter technology. Westland designed helicopter blades

in composite materials are long-lifed, need no maintenance, reduce operating costs and are available now for the Sea-King and S61 range of helicopters.

WESTLAND TECHNOLOGIES

Normalair-Garrett, the heart of Westland Technologies is at the forefront of systems technology and has scored major successes in the USA with the miniature digital data recorder on the F-18 fighter and OBOGS - selected for the B1B bomber to provide a continuous supply of oxygen for the crew without any storage on board - no heavy bottles, no dangerous liquid oxygen.

THE FUTURE We're working hard at Westland on products of the future - helicopters, hovercraft, advanced systems, all of which meet the world market for advanced transportation and systems. And we're constantly developing and improving our current range of products. It's the kind of constant hard work that has built Westland into the internationally known British company it is today.

And the kind of hard work that will bring in the glittering prizes of tomorrow.

Westland plc

Yeovil, England

Better times lie ahead as orders pick up

Civil airliners

MICHAEL DONNE

OVER RECENT months there have been encouraging signs that the world's airliner manufacturers may be heading for better times, and that the long climb out of the trough of recession could be under way. Boeing, the world's biggest builder of jetliners, has reported sales in the first six months of this year of 83 aircraft (of which no fewer than 52 have when for its shorten. 53 have been for its short-to-medium range 737-300 advanced aircraft), compared with only 30

in the first half of 1983, Both Airbus Industrie in Europe and McDonnell Douglas Europe and McDonnell Douglas in the U.S. have also done much better than last year, with new orders flowing in for A-310s and the new A-320 for Airbus, and a steady demand for the MD-80 series for McDonnell Douglas.

One significant indication that the world airliner manufacturing business is on the verge of an upturn is that sales of secondhand aircraft have increased substantially in recent months, and the big surplus of such aircraft that became a feature of the recession is now feature of the recession is now

feature of the recession is now being substantially reduced.

Large wide-bodied jets secondhand are difficult to get. Although there are a number of "white-tails"—new unsold wide-bodies — held by such manufacturers as Airbus Industrie and Boeing, the builders do not anticipate too much difficulty in disposing of them as the airlines' own condition improves, generating a dition improves, generating a

demand for equipment.

The makers bave always recognised that the glut of used aircraft would have to diminish substantially before sales of new aircraft began to rise, and the fact that both situations are now emerging indicates that better times may well be on the way, though no one is yet prepared to forecast a boom in sales of new aircraft. The recovery will be gradual, but nonetheless

own yields by the airlines, following their severe retrenchment measures of the past few

Alrime managements are now better equipped to understand and cope with external economic influences, and can react more swiftly. At the same time, fuel prices (one of the time, fuel prices (one of the biggest single cost items in the airlines' balance sheet) have stabilised, and in some cases have actually declined, and this, coupled with the internal re-trenchment undertaken by many airlines, has also improved their financial situation.

As a result, many airlines are now able to focus more atten-tion on fleet requirements and long-term re-equipment strategy. At the same time, the deadlines for compliance with new government-imposed noise regulations, coupled with the ageing

of existing fleets, are obliging managements to think more urgently of fleet procurement.
Airbus Industrie belleves that
between now and 2002 there
will be a world market for
nearly 8,000 new airliners of all kinds, worth close to \$450bn.
Airbus believes that of this
market, more than 3,500 of the
aircraft required will be in the

"single-aisle" category, such as Boeing 737s, McDonnell Dooglas MD-80s and Airbus A-320s, worth about \$89bn; about 3,154 worth about \$890n; about 3,154 aircraft will be in the short-to-medium range twin-alste category, such as Airbus A-300s and Boeing 767s, worth in all about \$226bn; while the rest, about 1,150 aircraft, will be in the long-range category, worth long-range category, worth about \$127bn.

Airbus believes that it can capture about 20 per cent (\$18bn) of the single-aisle business; about 33 per cent (\$75bn) of the short-to-medium range twin-aisle business; and about 17 per cent (\$22bn) of the longrange aircraft business — a collective total for Airbus of about \$115bn.

Airbus now believes it bas he gradual, but nonetheless real.

Factors behind this improvement in the manufacturers' situation include not only increasing traffic stemming from improving economic conditions, but also tighter control of their A320, now under development in the strong product line with which of the world's best-selling air. A320 to prove the success of the two production of the world's best-selling air. A320 to prove the success of the competition of the third that the third that the third that the third that the seriously to governments on through the 200-/220-seat A-310, logy airliner for the late 1980s, Airbus is interested in wider derivatives by Boeing and this venture, and has been but also tighter control of their A320, now under development McDonneil Douglas, although it discussing the possibility of the



The world's major aerospace manufacturers are looking ahead to a new era as the recession passes.

for service from spring 1988.

Total Airbus sales by midsummer had reached 406 sircraft firmly, for 49 operators,
with close to 270 aircraft delivered. Corrent production of
all versions of the Airbus is
running at 44 aircraft a year,
but hecause of the shortests of but because of the shortage of new orders last year, when the recession was at its trough, the production rate is being cut back to 80 aircraft for 1985 and

is well aware that both its rivals can still announce new aircraft and, with their great manufacturing strengths and skills, can perhaps catch the A-320 np.

In the meantime, bowever, availability of the A-320 by 1988 is still regarded by many airlines as a long time off, and Airbus expects to lose some orders to Boeing and McDonnell Dougles have been a stiller for release las because airlines, for noise and fleet aga reasons, cannot wait that long. But it also believes that, sooner or later, many of those same airlines will bave to turn back to the A-320 in order to be competitive. in order to be competitive, especially if the rival makers do not produce their own new

do not produce their own new designs.
Airbus is also now studying another potential addition to its fleet in the shape of the TA-11, a four-engined, long-range aircraft. The aim is to design an airliner that can fly very long distances, on routes where the traffic available does not justify using a hierer aircraft such as a using a higger aircraft such as a Boeing 747 Jumbo jet.

Airbus believes that the TA-11, powered by the new international V-2500 engine, could offer seat-mile costs equal to or chasper than those of the Boeing 747. Because of this,

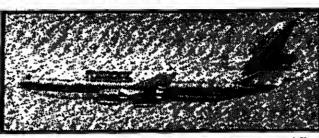
picks up, the group will be able swiftly to increase production flow by one aircraft a month, giving a total of 46 to 48 aircraft a year in 1955-86.

Airbus is putting particular emphasis on the A-320, which it believes will eventually be one of the world's best-selling airliners. Airbus believes that it is that venture, to enabla it to talk well shead of the competition seriously to governments on seriously to governments on Med-short range

Airbus is interested in wider international collaboration on Total market



Series 300 is Boeing's latest version of the twin-737 short-to-medium hani jet airliner, now Boeing's best-selling jet. The aircraft are seen on the production line at the company's Renton, Seattle, factory.



McDonnell Douglas of the U.S. is trying to woo new airline customers for the latest version of its DC 10 long-range tri-jet airliner, called the MD-XXX, which will use improved engines and many other new technological features.

Japanese serior, taking a share in it.

Boeing, the arch-rival to Airbus, also believes that, notwithstanding the difficulties of the standing the difficulties of the for by small jets of the 737-200 types; about \$42bn by the highest taking a share in it.

Of this, Boeing believes that about \$5bn will be accounted for by small jets of the 737-200 types; about \$42bn by the highest about \$42bn by t bus, also helieves that, notward the TA-11, says Airbus, is now being positively received by the airlines. Also, the 747 price is now so high—around \$100m per aircraft—that many airlines cannot afford such an aircraft. Airbus says that the TA-11, as now envisaged would be able to fig more than 5,400 nautical is miles non-stop (that is, Paristraft Conference of Tokyo), while an extra selection of Tokyo), while an extra selection for by small jets or the types; about \$42bn by the big-ser 727s, 737-300s, MD-80s, Airbus Airbus has not bush it has scaled down its gests that, over the period from 1984 to 1995, there will be a new market for airliners worth new market for airliners worth new market for airliners worth new airliners such as the TA-11. The remaining \$57bn would be accounted for by growth, and seconted for by the largest types, such as the Boeing 747, any new derivative of the McDonnell Douglas DC-10, or the projected Airbus TA-8.

Of the overall market, Boesing believes that, notward types; about \$42bn by the big-ser 727s, 737-300s, MD-80s, Airbus as about \$42bn by the big-ser 727s, 737-300s, MD-80s, Airbus as a little. Boeing suggests that, over the period from 1984 to 1995, there will be a 300/A-310 and prospective control for by growth, and accounted for by growth, and be accounted for by the largest types, such as the Boeing 747, any new derivative of the McDonnell Douglas DC-10, or the projected Airbus TA-8.

Of the overall market, Boesing believes that not airliners manustaged would be able to a gests that, over the period from 1984 to 1995, there will be a 300/A-310 and prospective control for by growth, and be accounted for by growth, and be accounted for by the largest types, such as the Boeing 747, any new derivative of the McDonnell Douglas DC-10, or the projected Airbus TA-8.

Of the overall market, Boesing believes that types, about \$42bn by the big-secure; types; about \$42bn by

Aircraft

twin aisle Med-short range

type Long range

Japanese aerospace industry about \$172bn. (meesured in taking a share in it. constant 1984 dollars).

back to 80 aircraft for 1985 and 1986.

As yet, Airbus has not approached governments regarding finance for such a venture, professuments of deliveries between now and picks up, the group will be able recognising that it first swiftly to increase production flow by one aircraft a month and at least the acceptable of the projected Airbus TA-9. Of the overall market, Boeing count worldwide, the total value of deliveries between now and 1995 is expected to amount to 42 per cent, while in the rest area.

Units \$ bn

475 44.0

675 35.5

1,500 40.5

2,650 120.0

COMMERCIAL AVIATION 1985-1994 Aircraft Market (constant 1985 \$)

Units \$ ha

375 19.0

1,100 32.5

1,550 58.0

75 6.5

have a growing share, of about 17.6 per cent and Europe about 20.6 per cent.

Boeing, while pressing ahead strongly with its own studies

of the world, the Far East will

into a prospective 150-seater type aircraft in the shape of the "7 Dasb 7," is still watching the market before committing itself to any new programme. It is also keeping alive its studies into new versions of the 787, and believes that the latest capable of seating up to about. 140 passengers, could be further developed into a 150-seater if

These further improvements could take the form of either a new wing, or new engines (probably the International Aero-Engines V-2500), or both. But the existing 737-300 is still selling so well—taking some of the A-320's market—that Boeing is reductant to push into-

the A-S20's market—that Boeing is reluctant to push into a new aircraft.

Boeing also believes that it could meet prospective 150-plus seater requirements with a possible derivative of the 757, or more than 6,000 nautical miles, with a smaller fuselage to seat about 165-170 passengers, again using the V-2500 engine. The company believes that there is company believes that there is company believes that there is amounce an order by this currently more market interest. currently more market interest. in such an aircraft than in any prospective 150-seeter.

Major customers

Before Boeing launches either a modified 757, or a "7 Dash 7" or even a new version of the Boeing 737, it would need a spread of two to three major customers, who would be likely between them. to need upwards of 100 aircraft over the years ahead. On that sort of base, Boeing believes, a long-term market could be built.

So far as the V-2500 engine is concerned, Boeing would require a smaller thrust than currently offered (around 22,000 lb instead of about 23,000-25,000 lb), and is discussing that possibility with IAE.

The medium-to-long range

twin-engined 767 also continues

are not happy with the bigger, 400-plus seat Jumbo jet.

Boeing believes that it ha the potential to give the 767 up to 6,000 nautical miles range, which would make it a highly suitable aircraft for long overwater operations, using either the Prett and Whitney PW-4000 engine or the General Electric CF6-80C2.

But one of Bosing's favourite But one of Boeing's lavourite programmes at present is a further development of the stretched upper deck 747 Jumbo jet, the Advanced Series 300 model. By making extensive use of the new, high-strength, lightweight aluminium, lithium, and by refurbishing the interior and using new enginees (either the high-thrust Pratt and Whitney PW-4000 or General Electric CFS-80C2). Boeing believes it can extend the range of the 747-300 by as much as another

announce an order by this autumn.

McDonnell Douglas, the third of the "big furee" commercial jet airliner manufacturers, is doing well with its MD-80 series of twin-jet aircraft. As of mid-July, it had delivered 167 of these aircraft, and had on the books a backlog of 126 more aircraft firmly ordered, with outlons or leases for 160. options or leases for 160.

Sales Burto Tilla

Mind the first of the little o

 $\mathbb{P}_{p^{m+1}}(A) \leq 2$

No Tilent

AL CO.

24

xperie

since the turn anging desic

₩-generatate

Etters in the

W-acre hear

#excellence leading agres

Mogramme in

Mional active

rorldwide.

%1360-best Major regi

Medium-lift, t

Skyvan STOL

Kingdom's m including ! advanced Jar

components.

components hokker 100

A Myanced Ca. aictalf.

USAF agains

options or leases for 160.

The company is looking ahead to new markets, and is discussing with airlines the MD-XXX, a developed version of the DC-10 tri-jet, which would have long range and carry about 300 passengers; using the new international V-2500 engine. It would thus fit into a market below the Boeing 747 Jumbo.

In the twin-engined MD-80 series itself, the company is offering various versions, ranging from the 130-seat MD-87. through to the 170-185 seat MD-88. Although it has studied to sell, and there is especially MD-88. Although it has studied strong interest in the longer-range versions of that aircraft, company believes that its MD-80 series more than adequately 250 seats and long range but responds to the market chal-CONTINUED ON NEXT PAGE

TH.		TUKBINI Akcraft		ves an Ls.		re pai U.S.	Wet	id
Wor	3bn	type	Units	\$ bm		\$ hn "	Units	\$bn
	- 7	Long range	350	4.5	2,400	20.5	2,750	25.0
550	50.5	Med-short range twin alsie	1,000	7.5	1.800	12.0	2,800	19.5
1,050	54.5	Med-short range single aisle	2,800	12.0	4,050		6,850	
2,600	73.0	Total market	4.150	24.0	8,250	47.0	12,400	71.0
4,200	178.0	Twitt history						-
					Source: Pre	tt & Whit	ney Aircra	r, v.s.
		Provide the second	. n = .0 =		Source: Pre	it & Whit	ney Aircra	
			- 10-6-10-		Source: Pre	at & White	ney Aircra	
			. 100.6		Source: Pre	at & White	mey Aircret	



Au₃₄₄₁ 28 ₁₈₈₄

and a math the piece of the party of the piece of the pie

Process of the control of the contro

THE THE IS LOOKING

Tierkers, and a le tierkers, and a le tieres the lang eriden of he where were

to and carry the

Tumbi

the case of the ca

The state of the s

The state of the s

erite to the market

PAPIARE PARTS

Anne. S.

5 miles 5 bm

1 1 W 201.5

1.5.80 12.6 2801

4. 年 14.7 656;

5 2 WO 47.6 12.89;

hicle

nch

orbit

247

DAT PAGE

and entire to

عكذا حن النَّ عل



The British Aerospace Nimrod Airborne Early Warning aircraft Mark 3, now under development, showing the extensive modifications to the nose and tail to house the complex radar systems of this aircraft. The Nimrod, used also by the RAF for maritime reconnaissance and anti-submarine warfare, is derived from the original Comet jet airliner.



The Swiss-built Pilatus PC-9 basic trainer recently made its maiden flight at the company's Stans, Lucerne, airfield. The PC-9 is one of the four short-listed candidates for selection for the RAF's new basic trainer, to replace ageing Jet Provests. If selected, its manufacture would be substantially undertaken in the UK by British Aerospace.

Strong demand expected to continue

Military aircraft

MICHAEL DONNE

Most of the major military aircraft manufacturers agreealthough their estimates vary —that this vigorous demand is likely to continue through the rest of the century as more and more countries seek new combat aircraft for their air forces or, especially in the developing countries, build them

British Aerospace is a major builder of military aeroplanes; the Tornado multi-role combat aircraft, the Jaguar jet strike-trainer, the Harrier vertical take-off fighter, the Hawk trainer and light combat aircraft, and the Nimrod maritime recomaissance and early-warn-ing aircraft developed from Britain's first jet airliner, the

Last year BAe's turnover in military aircraft and support services amounted to over £1bn,

against £435m from civil air study stage of a new Eurocraft — a clear indication of fighter to replace ageing the way in which military Jaguars in the Royal Air Force

some \$600bn will be spent on for military aeroplanes of all types, especially lighter tactical comhat aircraft, has bolstered the revenues of many aerospace companies whose civil aircraft activities have suffered severely from the ravages of the recession.

Most of the major military

some \$5600bn will be spent on military aircraft world-wide outside the Soviet bloc and China, about 40 per cent of this being spent in the U.S. The major share in the total market, in terms of cost, will be represented by combat aircraft of all types, of which some 14,000 will be delivered.

The trainer market will

The trainer market will account for another 6,500 aircraft, the airborne early-warn-lng demand for about 200 aircraft, the maritime recon-naissence and ant-submarine warfare roles for about 650, and transport aircraft from the smallest liaison types up to the hig freighters, for about 3,000 aircraft.

Pratt and Whitney of the U.S., the world's higgest aeroengine builder, estimates the military market over the next decade alone at about \$3200n (measured in 1985 dollars), an increase of some 55 per cent over the previous 10-year period. Of this total, some 60 per cent will be for the U.S. armed forces and the rest for the remaining free world.
In terms of numbers, Pratt

and Whitney sees this as 20,800 aircraft, of which about 210 (worth about \$44bn) will be long-range strategie types such as the U.S. Rockwell B-1B supersonic bomber; 9,550 (worth \$184bn) as tactical com-bat aircraft of all kinds; and about 600 transport aircraft (worth \$36bn).

(worth \$38hn).

The remaining 10,440 (worth \$58hn) cover a wide variety of types such as surveillance, reconnaissance, liaison, communications, airborne early-warning, airborne command post, evacuation and a host of other roles. other roles.

activities predominate, at least and French air force, Phantoms for the time being.

BAe's current forecast is that between now and the year 2000,

These studies will concentrate

on bow best to harmonise that various ideas held in the five countries on the type of new fighter required, together with its power-unit and the formula-tion of work and cost-sharing plans. By next March the Defence Ministers will meet again in Rome to take a final decision whether to go shead with the venture, dabbed the "European Fighter Aircreft" of EFA but more commonly named the Eurofighter.

Total of 800

This aircraft is needed by the early 1990s and an eventual total of more than 800 aircraft is envisaged, with exports also expected. Current ideas envisage a multi-role aircraft, with both ground attack and air superfority mission capacity, powered by an entirely new engine to be developed jointly by the partners but probably based on both the French Snecma M-88 concept and the Turbo-Union RB-199 engine that currently powers the Tornado.

This programme will involve Rolls-Royce, Sneema, Fiat Avia-zione of Italy and Motoren und Turbinen Union of West Ger-many. The airframe will in-volve British Aerospace, Messerschmitt - Bölkow-Blöhm, Das-sault-Bréguet, Aeritalia of Italy and Case of Spain.
The work-share will probably

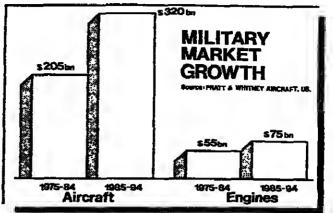
the about 25 per cent each for the UK, West Germany and France, with Italy and Spain dividing the rest. Cost sharing will probably be in the same proportions.

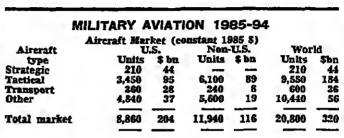
There are still many other questions to be settled about the Eurofighter. Apart from the The engines sector

vast market is assessed at

46,000 units, worth about \$75bn,
or about 35 per cent higher
than in the previous 10-year
period. The growth in aircraft
sales is larger than the growth
in engine sales because of the
in engine sales because of the
which country does what in the
actual design and development advanced avionics and weapons systems fitted to modern military aircraft.

By far the most significant system overlording the venture.





T	IRBINE EN	CINES	AND S	PARES		
Aircraft	U.	S.	Non-	U.S.	Wor	ld
type	Units	Sbn	Units	\$ bn	Units	\$ba
Strategie	1.050	6		_	1,050	6
Tactical	6.300	26	9,800	24	16,100	50
Transport	3,300	9	1,650	1	4,950	10
Other	11,150	5	12,750	4	23,900	
Total market	21,800	46	24,200	29	46,000	75

tries until next March to try to fighter venture is likely to be resolve them.

If they cannot be resolved, the possibility of one or more of the countries breaking away and going ahead alone eannot be dismissed. The French industry especially is still believed to be prepared to go that far if France cannot win overall design leadership of the venture, while the UK aerospace industry appears equally determined to prevent any one nation having overall control.

Meanwhile, both the UK and France will continue to develop their own individual "demon-strators"—the British Aerospace/UK equipment Industry Experimental Aircraft Pro-gramme and the Dassault-Bréguet/Snecma Avion de Combat Experimental (ACX), both due to fly in 1986.

The cost of the overall Euro-

ing research, design, develop-ment and production, though sales of the aircraft to other countries could produce substan-

tial returns.

Another significant factor behind the Eurofighter is the growing recognition of the need to close the ranks of the European military aircraft manufac-turers to keep the U.S. military aircraft builders out of the next generation of European combat

Had the Europeans failed to agree—and even if they still are unable to work together barmoniously over the ensuing months—the likelihood would be of tha new U.S. tactical com-

돌아가 아무슨 그는 물건들이 모모 아니는 그 나는 다.

years on research, development and initial procurement of an advanced toctical combat aircraft for the mid to late 1990s, a programme in which most of the leading military aircraft companies are competing.

Several other advanced milltary aircraft research programmes are under way in the U.S. These Include the Grumman X-29A "forward-swept wing demonstrator," designed to show the benefits of sweeping wings forward instead of back wards so as to create a new generation of tactical combat alreraft that could be smaller, lighter, less costly and more efficient than existing fighters.

All of the British Aerospace military aircraft programmes are running strongly. All the planned 805 Tornado multi-role combat aircraft have been ordered and so far well over 350 have been delivered. It is possible that a further batch of about 40 Tornado aircraft may be ordered to replace those lost through attrition. Some major export orders are being actively sought, especially in the Middle East, where Saudi Arabia has expressed interest.

For the Jaguar, a total of 573 have been ordered so far and about 450 have been delivered. Further export orders are being sought and it seems likely that the Jaguar production line will be busy until 1986 at least. Work is also well under way on the Hawk trainer/light combat aircraft for both bome and export, while BAe is now developing a new single-seat version of this oircraft to provide a cost-effective type for the many foreign air forces who need a relatively low-cost but efficient tactical combat aircraft. Work is also well advanced

on the advanced Harrier GR Mark V for the RAF and the AV-8B Harrier II for the U.S. Marine Corps, in conjunction with McDonnell Douglas of the U.S. A total of over 400 of these Harriers are envisaged for the U.S., the UK, and the Spanish Navy.

Also looking to the future, McDonnell Donglas, in collaboration with British Aerospace,

ls studying the possibility of developing a supersonic vertical and short take-off aircraft, de-rived from the Harrier. As part of these studies, Rolls-Royce has also been studying "plenum chamber burning" (PCB), a bat aircraft moving in to fill the method of boosting the thrust gap in the mid-1980s.

In the U.S. the Air Force is to the high power that superalready planning to spend well sonic V/STOL aircraft would over \$2bn over the next-five need.

One of the World's most experienced aircraft manufacturers.

Short Brothers — leaders in the aviation industry since the turn of the century — are today engaged in wideranging design, production and research programmes covering new-generation aerospace products which will provide pacesetters in their fields through the present decade and beyond.

Backed by the superb modern resources of their 460-acre headquarters complex at Belfast — and with traditions of excellence which have been acknowledged by the world's leading aerospace corporations — Shorts on-going work programme includes:

 Producing the world's first 30-seat wide body regional airliner — the Shorts 330, now adopted by 45 operators Producing the advanced, second-generation 36seat 360-best-selling aircraft in its class and already flying with

19 major regional carriers. Manufacturing the versatile Shorts 330-UTT medium-lift, tactical transport for military users.

 Building the world's largest light aircraft — the Skyvan STOL transport now flying with over 40 operators.

 Manufacturing and developing the United Kingdom's most successful range of close-range guided missiles -including the combat-proven Blowpipe and Seacat and the advanced Javelin system.

 Providing high-technology jet engine nacelle components for the Boeing 747 and 757 and the BAe 146.

 Manufacturing a range of major, precision components for the 747, the 757, the Fokker F28 and the new Fokker 100.

 Designing and producing some of the largest advanced carbon-fibre components ever to be used on passenger aircraft.

 And — shortly to enter service — the unique. multi-role C-23A Sherpa freighter which is in production for the USAF against orders and options worth some £460m.

ORT BRETHERS PLC PO Box 241 Airport Road Belfast BT3907 Northern Ireland Te

in the company's view keep this

nautical miles), collectively in McDonnell Douglas' view offer

the broad 150-seater category.

Progressive improvements planned through the 1980s will

Especially, the 155-seater trio of the MD-81 (capable of 1,682 over the past few years has natutical miles range), the MD-82 (2,047 nantical miles) worldwide with the F-28 twinand the MD-83 (just over 2,500 engine jet Fellowship, and the twin turbo-prop F-27 Friendship airliners, bas now launched the airlines as wide a variety their successors onto the world of types as they could need in market-place, the F-100 twin-jet and the F-50 twin turbo-prop. Both these aircraft make considerable use of advanced technology, and have substantially improved noise levels and fuel

Orders pick up

CONTINUED FROM PREVIOUS PAGE

lenga in this area offered so far by the A-320 and Boeing 737-300.

Especially, the 155-seater trio of the MD-31 (capable of 1,682)

airlines a larger aircraft that can compete on routes where a 150-seater would be too small.

Fokker, of Holland, which over the past few years has

In the turbo-prop head, row increasingly greater cost of the ker believes a world demand increasingly greater cost of the up to the end of this century of advanced avionics and weapons systems fitted to modern mili-

Most of this market will be

for which the higger Boeing 737s and MD-80s are available, and Fokker believes a market for several hundred F-100s is available through tha rest of this century.
In the turbo-prop field, Fok-

for the replacement of existing ageing turbo-props, and Fokker

family of short to medium range jets fully up to the competition. The smaller MD-87 is intended to meet the requirements of smaller regional airments of smaller

Spearhead of advanced materials technology

New Materials MICHAEL DONNE

THE AEROSPACE industry bas always been one of the major spearheads for the development of advanced materials tech-

search for higher strength with lower weight and longer component life at reasonable cost has dominated aeroapace development for many years across the entire spectrum years across the entire spectrum of civil and military aircraft and engines, guided weapons and, more recently, spacecraft.

As Sir Frederick Pagc, the former chairman and chief executive of the Aircraft Group of British Aerospace, pointed out in a recent lecture on "Future Developments in Technology to the Year 2000." the

it is changing the types and proportions of materials used, in turn, this poses important questions for the suppliers of

Composite materials In Sir Frederick's view, the rapid developments now occurring in carbon fibre, Kevlar and other materials, and in the production methods used to obtain the best mixes of such materials, "it seems certain that the proportion of composites will continue to

Ar the same time. aluminium alloy suppliers are also working to provide im-proved materials, again with the

occupying much time and attention in the aerospace is aluminlum-lithium, called Al-li in the UK and Alithalite in the U.S. Much work has been, and is being, done on this material in the UK by British Alcan Aluminium, and in the U.S. by the Aluminium Company of America (Alcoa).

Lithium is the lightest of the metallic elements. It occurs the projected new European widely in nature, although its Fighter Aircraft for the 1990s, concentration in ores is very or even in parts of the A-820 concentration in ores is very or even in parts low. Dry lithium chioride is European Airbus.

monly used in batteries and also has applications in atomic energy. Once alloyed with aluminium, however, and solidied, lithium becomes stable and non-reactive, making it possible to use in a wider range of

The benefits of aluminiumlithium lie in the fact that, despite its initial higher cost over existing aluminium alloys (although this is expected to be reduced in time), it is highly stantial saving in weight while possessing a much higher

degree of strength and stiffness.
As a result, the development
of aluminium-lithium is regarded as the most significant

"Future Developments in Technology to the Year 2000." the long-standing dominance of aluminium alloys and steel was challenged frum the 1950s onwards hy the emergence of titanium and composite materials of various kinds.

Today, "we are in the midst in a rapid devetopment of structural materials and methods of manufacture," Sir Frederick said.

"Exactly where it will lead is difficult to predict. Certainly it is reducing structure weight for a given duty, and certainly it is changing the types and proportions of materials used.

Its henefits in aerospace alleady appear considerable. The lighter weight (up to 10 per cent when used as a replacement material in existing oouload-bearing aerospace alleady appear considerable. The lighter weight (up to 10 per cent when used as a replacement material in existing oouload-bearing aerospace parts, such as wing flaps, slats and doors, and up to 20 per cent when it is used as an integral in existing parts of an aircraft.

One estimate is that if the existing weight of the aluminimum used in, say, a jet airliner. is 160,000 lb, tha use of aluminimum-lithium could reduce it

minium-lithium could reduce it by 14,000 lb, which saving could be traded for either increased payloads (more passengers) or more fuel (giving longer ranges). Aluminium-lithium so used could cut seat-costs per mile by as much as 6 per cent. One U.S. calculation is that an

airline with a fleet of 20 or so long-range transport aircraft using aluminium-lithium structure parts could save as much as \$40m a year on fuel costs of \$2 a gallon. This may be an extravagant estimate, since noone yet really knows precisely what the savings really could or would be, but it serves to show how seriously aluminium-lithium is being regarded. In the UK, British Aerospace

proved materials, again with overall objectives of higher strength with lower weight at the total cost.

In the UK, British Aerospace has been studying the potential uses of the material at Filton, meteral and Warton, near Bristol, and Warton, Lancashire, undertaking machining, forming and other tests. ing, forming and other tests.

BAe expects to employ the
new material initially in nonstress bearing parts of aircraft,
such as wing-slats and flaps,

building up, as knowledge of the material's stress bearing qualities develops, to its use in other more primary structures. This means that aluminium-lithium could be used in parts of



Sikorsky Aircraft of the U.S. is now building a new helicopter, making far more extensive use of advanced composite materials than ever before, under the U.S. Army's Advanced Composite Aircraft Programme (ACAP). The helicopter features extensive use of graphite/epoxy and Dupont's Kevlar/epoxy materials, yielding a 24 per cent saving in weight compared with an equivalent aluminium airframe

In the U.S., Boeing bas also done much work on the new material, and is enthusiastic about its long-term potential. Boeing believes it could be used in new aircraft entering service around 1988, which means that it could be used in any new airliner Boeing might develop to compete with the Airbus At this stage, quantity manufacture of the material is

at a relatively early stage. In the UK, British Alcan, which bas made a major contribution to bringing the material from the laboratory to the production stage, is now building a major new production plant at its Kitts Green, Birmingham, factory, which it is hoped to have operational later this year. In the U.S., Alcoa, whose investment in Alithalite now amounts to more than \$50m amounts to more than \$50m, says the material will become commercially available in 1985. Alcoa plans to offer it in three basic forms—plate, sheet and

forgings—from plants in Cleve-land, Ohio; Davenport, Iowa; Lafayette, Indiana; and Los Angeles, California

before committing themselves extensively to its use.

Demand is expected to increase significantly over tha next few years, however, so that by the end of this decade it may be used almost as exten-sively in aircraft as titanium is

Meanwhile, the aerospace industry continues to make in-creasing use of other alloys and also of composite materials of all kinds. In composites the search for new mixes of mater-ials is unending and large sums are spent nn composites

Labour saving

In the U.S. Sikorsky bas sub-stantially expanded the use of materials such as graphite, fibre-glass and Keylar/epoxy composites. Among current fibre-glass and Kevlar/epoxy programme. It is still intended while for even higher-temperatory activities is the development of a composite-material rear fuse-lage for the H-60 helicopter, Northern Ireland, perhaps startunder a U.S. Air Force continuous for the New Year.

Manually activities is the development of assembly of the aircraft in Northern Ireland, perhaps startunder a U.S. Air Force continuous for the New Year.

Manually activities at the force strength and temperature for the H-60 helicopter, northern Ireland, perhaps startunder a U.S. Air Force continuous for the H-60 helicopter, northern Ireland, perhaps startunder a U.S. Air Force continuous for the H-60 helicopter, northern Ireland, perhaps startunder a U.S. Air Force continuous for the H-60 helicopter, northern Ireland, perhaps startunder a U.S. Air Force continuous for the H-60 helicopter, northern Ireland, perhaps startunder a U.S. Air Force continuous for the H-60 helicopter, northern Ireland, perhaps startunder a U.S. Air Force continuous for the H-60 helicopter, northern Ireland, perhaps startunder a U.S. Air Force continuous for the aircraft in the development of production, however, with a stronger for the H-60 helicopter, northern Ireland, perhaps startunder a U.S. Air Force continuous for the aircraft in the development of the aircraft in the

manufacture of lithium by electrotysis.

Manus industric used is material protrotysis.

Manus industric used is defining comtrotysis.

No defaulted off.

Which have the advantages of
to many years been a pioneer powder metallurgy inclode
is 17 per cent lighter, has only
of new methods and tha use of
fewer steps in the manufacturtrotysis.

No defaulted off.

Wes.

Which have the advantages of
in the UK, Rolls-Royce has
for many years been a pioneer
for many

so as to improve progressively approach to the material, satistic range-payload performances.

The company is also responseerch for higher efficiencies sible for the U.S. Army's S-75 and performance throws extra advanced.

Advanced Composite Aircraft thermal and mechanical stresses tural and manufacturing integ. Advanced Composite Aircraft thermal and mechanical stresses rity, such as its suitability for Programme, a venture designed on the working parts of a gas heing shaped into the complex to produce the world's first turbine.

parts that aircraft require, composite-airframe helicopter. To co

aimed at producing and evaluating an airframe that will achieve a 22 per cent saving in weight, several new high-temperature and a cost saving of 17 per cent alloys. Much work has also been over conventional metal air. carried out on reducing weight frames, by making extensive of some engine parts under inw use of Kevlar, graphite, fibre-stress by replacing alloy comglass and other composites. In fact, the ACAP has bettered these figures, with a 24 per cent weight saving and a 23 per cent

cost saving, as well as sub-stantial improvements in reliability and maintainability, formance.

Also in the U.S., work has been under way for some time Royce include the progressive on the development of an all-replacement of steel compressor

To counter those effects, and

The ACAP venture bas been extend the durability of engine imed st producing and evaluat components. Rolls-Royce has an airframe that will achieve luitiated the production of ponents with others made from carbon or glass-fibre.
The overall effect of improved

materials is to produce a lighter, stronger engine with scope for

composite business aircraft, the discs and blades with lighter twin turbo-shaft Lear Fan. This titanium alloy components. A venture has been delayed permits more extensive use in the contraction the hotter parts of an engine, while for example of the contraction to the hotter parts of an engine, Lafayette, Indiana; and Los tract.

Angeles, California.

With conventional metal consumption of the aerospace struction, such a component is substantially slowed, and most of the labour force has been, or offering longer component is help demands for the material.

Researching in the New Year.

Meanwhile, activity at the ture resistance, making it Northern Ireland plant has been possible for turbines to run substantially slowed, and most with higher rim speeds and offering longer component is help and temperature.



New technology on the flight deck

The new generation of jet airliners either now under develop ment or entering service, such as the Airbus A-310 and A-300-600, feature new concepts in flight technology, whereby extensive use is made of "push-button" and eathode-ray tube electronic displays, enabling these aircraft to be flown safely and easily with two-man crews. On the Airbus cockpits and easily with two-man crews. The the Antons excepts (shown above), the cathode ray tubes are used to display inflight and navigation information, together with the electronic monitoring of aircraft systems and the presentation of warning information on malfunctions easing the pilots' workload and making the flight deck a more congenial place

material and machining time. Rolls-Royce has also developed a laminate material

named Transply which considerably improves on conventional materials used in the very bot parts of a gas turhine, where flams temperatures of about 2,000 degrees Centigrade are common. The materials used in the combustion chambers must therefore be capable of withstanding the extremes of temperature and pressure.

Ceramic coatings Ceramic coatings can help in

sary to keep the metal tempera-tures as low as possible. Transply has been found highly bene-ficial in this respect when used in combustor casings. Transply is a nickel alloy sandwich with "transpiration" passages built into it to allow the free passage of cooling air. Combustion cooling air re-

halved, making more air available for mixing with the fnel and for emission control, giving a clearner and more durable component, With Transply fewer cooling rings are needed, and weight.
Rolls-Royce has also been

working extensively on the use

Citing examples, Rolls-Royce Aircraft (EFA) programme.

says that these advanced carbon also composites are tolerant of temalso composites are tolerant of tematerial peratures up to 300 degrees
sider Centigrade. They ofter weight
tional savings of up to 25 per cent
y bot over light alloys, with no loss
where of integrity on the RB-211-524
turbo-jet it adds up to a total
weight saving of over \$70 lb per
used unit. On a Boeing 747 fourmbers engine Jumbo jet this allows engina Jumbo jet this allows seven more passengers to be

> Though the use of carbon composites in engines has been confined so far to lightly loaded commed so far to ughtly leaded structures, much valuable experience has been gained from the aspects of weight-saving, mechanical reliability and manufacturing costs.

Programmes are in hand at Roll-Royce to extend the application of composite materials and to exploit the higher temperature composites now becoming available.

British Aerospace has been a leading exponent of the development of carbon fibres

and other composite materials, especially for military aircraft. BAe bas bean working on com-posites for nearly 20 years, and apart from developing com-posite material parts for the Jaguar and the Toraado multirole combat aircraft, considerable effort has been, and is ponents for the Experimental Aircraft Programme (EAP), the proposed forerunner of an

Computers aid design and production methods

New Techniques LYNTON MALAIN

COMPETITIVE pressures and rapid technical advances bave combined to accelerate the introduction of new design ond manufacturing methods by world aerospace companies.

The advances in aerospace computer systems and increasingly small, rapid and reliable micro-electropic circults. In manufacturing techniques the main advances bave been in the coulrements and different operaproduction systems. often related to the use of new materials such as composites, including carbon fibre. In high-precision manufac-

turing, companies are making greater use of lasers, for drilling and cutting. Where light-weight, high strength and structural integrity are re-quired, as in jet engine parts, new techniques include the growth of single crystal metalic parts and the use of partner in Airbus Industrie "metallic sandwich" components.

In aerospace design the technology of computer-aided design (CAD) is at the forefront of computer - based techniques. This approach to design is set to become a standard technique

in much of the industry.
One of the greatest advances made possible through CAD is the elimination or reduction of the need to design, develop and produce prototype aircraft, missiles, radar systems and air-borne avionics ahead of full production. The British Aeroan aircraft that did not go through the prototype design This CAD/CAM control at a recent example of an integrated design and manufacturing system.

The first alreraft to fly was the one first designed and the

Air Force. avionics, where electronic cir-

the bardware itself. Cossor Electronics, the UK defence equipment company that is part of the U.S. Raytheon group, uses CAD techniques as standard for the design of its radar and other electronic pro-

Most aerospace products can now he designed, if the manu-facturers and customers choose, nn catbode ray tube displays. Detailed mathematical modelling can be used, allowing the designers to amend and alter their ideas to take into account a range of variables, including different national statutory re-

The increases in the computational speeds of microchips have helped designers in aerospace, but much greater speeds are likely to he required before aeronautical engineers are able to design airframes in their entirety.
Computer design techniques

pioneered by British Aerospace for the design of wings, including its work as the the company to produce relatively thick wings with reduced sweep to achieve bigb subsonic speeds and improved lift coefficients. Reduced weight and enlarged fuel volumes can

Integrated system

Linked to computer-aided design is computer-aided manufacture (CAM). Rolls-Royce is developing computer aids to help the design and detailed

mately will be capable of pro-cessing information from design and detalled engineering work same machine that is in quan- and then planning the entire tity production for the Royal manufacturing sequence. This will include operations from The same is true of other the production of nnmerical aerospace projects, especially in tapes for controlling tho machine tools to time and cost

claims.

spent on the three-dimensional analysis of parts will be pos-sible with the introduction by Rolls-Royce of the numerical

geometry system (NGS).
Rolls-Royce is a world leader in the development of large fan turbo-jets, which get three-quarters of their thrust from air hy-passing the bot centre of an engine. The design of the fan is crucial and by removing the "snuhher," which links each fan hlade with the next hlade, the efficiency of the fan can be improved, though there is a

penalty because the blades bepenalty because the places pe-come less rigid.
Wider blades can solve the problem, but they are be beavier. Rolls-Royce solved the problem, but they are blade fahricated as a "sand-wich" from titanium sheet with a light titanium honeycomb

These wide blades are 30 per cent fewer than in a conventionally produced fan. Specific fuel consumption with engines such as the Rolls-Royce 535-E4 fitted with the bollow boneycomeb blades could be cut by

up to 21 per cent. The pre-formed titanium panels of each blade are produced by "creep-forming" to the desired aerofoll shape. The inner surfaces are then chemically etched to achieve the required wall section.

A sandwich technique is also used by the company in its ships between design ideas and "Transply" laminate material the "buman interface for use in engine combustion require, says Mr chambers. Transply is a nickel alloy sandwich with "transpiration passages" to allow cooling Some of the air to reach the inner wall of the chamber.

The effect is to halve the requirement for combustion cooling sir, leading to greater fuel efficiency. Advanced techniques to cut costs and further improve efficiency are at the beart of

cooled turbine blade aerofoil by focusing, laser beams can have power densities approaching those of electron beams. With the development of mathematical models to cut the time fused to the surface to be hardened by the beam.

The development of mathematical models to cut the time fused to the surface to be hardened by the beam.

The development of mathematical models to cut the time fused to the surface to be development, test and evaluation by the U.S. Department of the current fused to the cut the time fused to the surface to be development.

This process is fully auto-mated and is used at Rolls-Royce to give high consistency and shorter setting-up times. The technique therefore bas advantages for individual and 1984. short product runs.

The Lockheed Missiles and Space company of the U.S. has developed computer techniques for showing how people can be used more effectively in aerospace activities. In par-ticular, the company has developed ADAM and EVE, the "anthropometric design aid mannikin" and the "ergonomic value estimator."

Human element

These are computerised outlines of a man and a woman and show how people co-ordinate with the assembly of Trident nuclear missiles. The ootlines are produced on Lockheed's CADAM, "computer

graphics augmented design and manufacturing " monitors. Of the six fleet ballistic missile versions produced by Lockheed since the 1950s, "Trident II is the first to be designed entirely by CADAM instead of by the drawing board," the company states.

The best feature of CADAM is its ability to belp the designer to visualise relationthe "buman interfaces" they require, says Mr Richard Davids, a senior buman factors

make through improvements in will be simplified and installa-electronic micro-circuits. De-tion space reduced, with a signers aim to achieve ever possible cut of 50 per cent in bigher speeds and greater com-puting capacity on still smaller micro-chips.

About half of the total cost of

avionics, where electronic circuit designs can be tried and
tested with computer - aided
design on a screen before
money is spent on producing
money is spent on producing

avionics, where electronic cirmachine tools to time and cost
many agrospace manufacturing
advances in defence work is bas been spent on work by the
form at immense speeds. A chip
production to a system and is expected to be
production to a system and is expected to be
production to a system and is expected to be
production to a system and is expected to be
advances in defence work is bas been spent on work by the
form at immense speeds. A chip
production capacity in printed
with computer - aided
design on a screen before
"turbioe aerodynamic cooling
interactive terminal user syshard-coating of materials, metal
integrated circuits" by the U.S. advanced lithographic and fabrifor BAe guidad weapons.—

The importance of these time VHSIU programme so far
form at immense speeds. A chip
production to apacity in printed
with computer - aided
form at immense speeds. A chip
production capacity in printed
with computer - aided
form at immense speeds. A chip
production capacity in printed
with computer - aided
form at immense speeds. A chip
production capacity in printed
with computer - aided
form at immense speeds. A chip
production capacity in printed
with computer - aided
form at immense speeds. A chip
production capacity in printed
with computer - aided
form at immense speeds. A chip
production capacity in printed
with computer - aided
form at immense speeds. A chip
production capacity in printed
with computer - aided
form at immense speeds. A chip
production capacity in printed
with computer - aided
form at immense speeds. A chip
production capacity in printed
with computer - aided
form at immense speeds. A chip
production capacity in printed
with computer - aided
form at immense speeds. A chip
production capacity in printed
with computer - aided
form at immense speeds. A chip
production capacity in printed
with computer - aided
form at imme

tem" which assists the design cutting and drilling are among Defense Department, which has of turbine blades. It has reduced the most successful of these adspent \$500m on VHSIC work the time taken to design a vanced techniques. With optical since its programme began in cooled turbine blade aerofoil by focusing, laser beams can have the fiscal year 1980.

the Air Force in the current fiscal year. Electronics accounts for \$466.2m, or 36 per cent of the total \$1.29bn technology R and D budget estimates for Within this dominant research

spending area the work on "very high-speed integrated circuits" accounts for the circuits" accounts for the biggest single allocation in the entire R and D hudget.

Spending hy the U.S. Department of the Air Force on VHSIC is budgeted to reach a peak in the five-year programme this year with \$125.1m allocated. This is almost 10 per cent of tha entire R and D oudget and over 25 per cent of the Air Forca Department budget on electronics research.

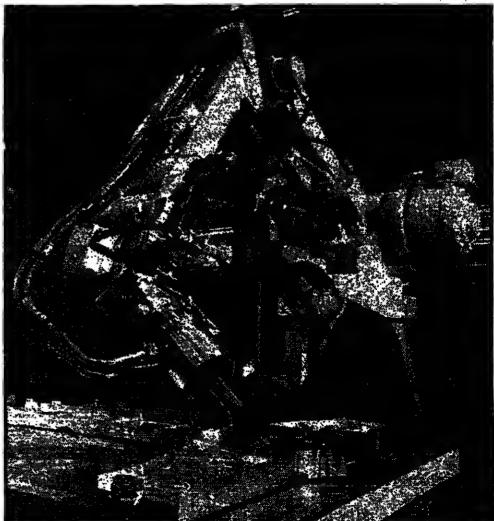
tronics research. Six U.S. contractors are involved in the programme: Hooeywell, IBM, Texas Instruments and teams headed by Hughes Aircraft, TRW and Westingbouse. The contractors in Phase I of the programme have already produced over 1,500 fully functional VHSIC

chips.
Phase II proposals are under evaluation, with the six existing contractors bidding, along with a new bidder, AT and T Technologies in partnership with Raytheon and E-Systems. Very high speed integrated circuits are expected to change radically the design options

open to aerospace companies, especially in airborne alec-tronics or avionics equipment. The potential improvement is engineer at Lockheed.

Some of the greatest one card of VHSIC replacing advances in aerospace design and manufacture have been aircraft or missiles. Maintenance

The importance of these the VHSIC programme so far



Northrop Corporation of the U.S. has begun operating an articulated arm robot in the precision removal of sharp edges from aluminium parts for the U.S. Navy's F/A-18 Hornet strike fighter. The machine reduces the man-hours involved in this operation by 40 per cent at Northrop's Machining Cent re in Hawthorne, California

of an inch square. Some of the chips can per-

cation techniques.

The result is the production of memory chips with almost 500,000 transistors, interconnected on chips less than a third of an inch square.

to find specialised applications at Bristol will enable BAe to pack three times as many components as before on to a given and in equipment for processing squares.

The line will include an autosources.

In Britain, British Aerospace form at immense speeds. A chip produced by IBM can carry out production canacity in mental production in August 1985. The

The line will include an automated flexible manufacturing multilayer printed circuit electronic circuit boards. A fim boards" are to be used mainly



The Chase Partnership at work with Rolls-Royce at Derby, in front of the new RB211-535E4. Shown from left to right: Christopher Rocker, vice president, Country Corporate Manager, Chase UK; Paul Spencer, Group Treasurer, Rolls-Royce; Michael Kruse, vice president, Aerospace Division Executive, Chase New York; David Wicks, Head of Marketing, Rolls-Royce; John Rose, Head of Sales Financing, Rolls-Royce; Geoffrey Boll, vice president, Export Finance, Chase UK.

The state of the s

terrenemb entrement d mert et tubni

ten mit bericht. In ein wirdigen

The Chase Partnership.

Working closely with Rolls-Royce Ltd to provide trade finance for aero-engines wherever it is needed around the world.

Chase became The Premier Trade Bank™ globally by having the finest international corporate bankers, systems specialists and trade experts work closely together with major quality corporations worldwide.

This spirit of partnership has led to the development of innavative, tailarmade trade financings, which aptimise export credit agency facilities, leveraged leases, bankers'

acceptances and non-recourse transactions.
Partnership—that's what makes Chase secand to none in trade banking.

The Chase Partnership



Export Credit Agency Financing Global Network Foreign Exchange People Export Trading Company Remote Terminal L/Cs

Slow recovery but long-term demand is good

Helicopters MICHAEL DONNE

OVER THE past two years or so demand for helicopters world-wide bas dipped as a result of needs caused by the economic

manufacturers Helicopter Helicopter manufacturers here been sustained by the volume of military business, which has remained at a high level, especially in the U.S. Sikorsky, the world's biggest single manufacturer of helicopters, estimates that during 1993 worldwide helicopter sales 1983 world-wide helicopter sales amounted to about \$4.5hn. This represented a fall of about 5 per cent over 1982, largely because of poor commercial demand.

Even so, most of the major belicopter manufacturers be-lieve that even if near-term demand is set only for a slow demand is set only for a slow recovery, the long-term demand for helicopters remains good. Both Westland Helicopters of the UK and Sikorsky of the U.S. agree hroadly (although their estimates may vary in detail) that angual demand for heli-copters of all types will total about 2000 sirraft a wear in about 2,000 aircraft a year in the Western World up to the

Lower figures

Sikorsky is forecasting that between 1984 and 1993 the total world demand for helicopters of all types is likely to amount to about 21,700, of which military aircraft will eccount for about 10,200 and the civil market about 11,500, as the accompanying table shows.

These figures are slightly use has been under-estimated, lower than forecasts made by and that renewed economic Sikorsky a year ago for the ensuing decade. This reflects a corporate profits that lead to reduction in demand in the increased demand for helilight civil sector (for helicopters up to about 7,000 lh gross weight), which has been herdest hit by the recent the Third World, e

engined models.

But Sikorsky also believes in handling the commercial intricacies of the overseas that there will be some compensating increase in demand for The company has firmly sating increase in demand for intermediate and medium-beavy helicopters. This is largely national collaboration, and one beavier version of the earlier beavier version of the earlier in military helicopter programmes are either now under way or are planned, such as the Anglo-Italian EH-101 Sea King replace-intent (with also a civil variant) and the Franco-German PAH-2 anti-tank helicopter, which will boost the military helicopter form their own Spanish heli
The company has firmly extensive overseas markets for intermation, and one beavier version of the earlier Lynx in the light of the concept of intermations national collaboration, and one beavier version of the earlier Lynx multi-role helicopter. Developed as a private venture at a cost of several million pounds, the Lynx 3 has been long-term helicopter manufaction. Developed as a private venture designed to fill the need for a new generation of battlefield and available casa and Spain to tank and auti-ship attack.

Using GE/NASA technology

developed in the E' engine project,

YOU NEED GE

GENERAL 8 ELECTRIC

TO GET THE ADVANTAGE.



The Westland Lynx 3 is an anti-armour helicopter, capable of close air support, troop carrying and logistics support, as well as casualty evacuation. It is the latest development by Westland of the long-running Lynx multi-role helicopter line

produce major components for the Sikorsky S-70 and H-60 heli-copters, with final assembly and

flight testing of both types being

in Australia with sales rights throughout the Far East and South-East Asia, in conjunction with Westland.

This is part of an overall plan by Westland to collaborate with

Overall plan

copter design and manufactur-ing base. Initially, Casa will figures as the decade advances. figures as the decade advances.

Even so, the civil market over the next 15 years or so will continue to be strong, as the figures clearly show. Much of the growth will be in the corporate market, with more and more companies, especially in the U.S., taking to helicopters instead of fixed-wing aircraft as they become more affordable and as recognition of their and as recognition of their versatility increases.

The civil helicopter market is still maturing. Today's generation of helicopters is significantly better than yesterday's. and tomorrow's generation will be still better—more efficient, more comfortable, faster and

Sikorsky believes that the future ebility and willingness of corporate customers, both in the U.S. and elsewhere, to buy helicopters for general business copters, as it will for business

ross weight), which has been New markets are opening in street hit by the recent the Third World, especially in Asia; the executive helicopter Sikorsky believes that the market will expand; and Sikorlight, single-engined civil heli-copter market world-wide will attack on overseas military remain depressed as many customers trade-up into the ening its international sales new generation of light twip-propried models.

The company has firmly extensive oversess markets for espoused the concept of inter- its new Lynx 3, the bigger,

exceed 1,000 aircraft, of which it aims to win a substantial share. Lynx 3s cost about £18m each, with equipment extra, Westland would need to win orders for between 60 and 70 Lynx 3s in order to break even on the programme.

Markets where Westland is studying possible Lynz 3 sales include Australia, where there is an emerging need for a new naval helicopter, and Belgium, where a new Army helicopter is needed. In both countries, Westland is offering significant industrial offsets in e bid to win

In both markets, however, Sikorsky of the U.S. is offering considerable competition, while for the longer-term future the forthcoming PAH-2 helicopter from the Franco-German Aero-spatials-Messerschmitt combine will also be a severe competitor

at least in some roles.
Other markets under study by
Westland include Brazil, Malaysie New Zealand, Norway and Pakistan for the naval version of the Lynx 3, and Sweden, Switzerland, Holland and Oman

flight testing of both types being undertaken in Spain.

The development of edditional helicopter marketing in areas of mutual interest is also envisaged and Sikorsky will provide training in the U.S. for Casa employees.

In the UK, Westland Helicopters, which is building the W-30 helicopter for both civil and military use, believes thet it can sell up to 725 aircraft for the Army version.

Other significant developments in the helicopter manufecturing industry over recent months have included the launching of the full-scale development programme of the development programme of the joint Anglo-Italian (Westlandcan sell up to 725 aircraft through to the year 2000; 415 of these will be commercial versions and the remainder Agusta) EH-101 medium-weight multi-purpose helicopter. This aircraft is intended in its military version to replace the Sea King anti-submarine warfare helicopters in the Royal Navy and the SH-3D helicopters in the military.
As part of its overseas sales campaign with the W-30, West-land has offered the Australian Aircraft Consortium a plan for the manufacture of W-30 aircraft

Italian Navy.

A commercial variant is also under development. This is aimed at meeting operators' needs for extensive range (300 miles) and large psyloads (up to 30 passengers), not only in offshore oil support but also for such activities as logging, mining and on-shore exploration where the location of support fecilities either procludes fixed-wing aircraft operations or makes them difficult.

by Westland to collaborate with the Anstralian aircraft industry, which also includes the possible manufacture in the UK of the makes them difficult.

Australian Wamira II hasic fixed-wing trainer if that aircraft is selected by the RAF in its current search for a new trainer to replace its ageing. Jet ledicopters.

The location of supplications or makes them difficult. The first flight of the KH-101 is seet for 1986, with first production deliveries from 1989. The venture is being run by EH locations or makes them difficult. The first flight of the KH-101 is seet for 1986, with first production deliveries from 1989. The venture is being run by EH location or makes them difficult.

The first flight of the KH-101 is seet for 1986, with first production deliveries from 1989. The venture is being run by EH location or makes them difficult.

The first flight of the KH-101 is seet for 1986, with first production deliveries from 1989. The venture is being run by EH location or makes them difficult.

Helicopters.
Sales of well over 700 EH-101.
sircraft are envisaged up to the
end of the century. About 500
could be the commercial model and the rest military.

One of the most significant new military helicopter contracts now under study in Western Europe is the provision of a new tactical transport heli-copter to replace the RAF's existing Wessex and Puma

version of its Super Puma helicopter; and Sikorsky, which offers a version of its Black Hawk aircraft now used extensively by the U.S. armed forces.

Westland is nonetheless pushing its W-30 hard, with a specific variant, the W-30-404, offered to meet the RAF's needs. It is possible, but not yet settled, that

whichever aircraft is chosen will be required to use the new Rolls-Royce/Turboméca RTM-322 helicopter engine now under development A number of major new

helicopter development pro-grammes are now under way in the U.S., which may revolu-tionise the military helicopter market in the years ahead and have an eventual impect also on civil helicopter design. Sikorsky, for example, has a \$77m con-tract from the National Aero-ventice and Space Administra-

Westland estimates that, out helicopters. An eventual order Gazelle light belicopter, the side the U.S., the market for for about 125 aircraft, worth this type of helicopter could well over £200m, is envisaged. Lynx multi-role aircraft. (ABC). It involves two counters avionics, control technology, rotating blades on a single axis, and electronic systems integrating the higher speeds tion.

(ABC). It involves two counterrotating blades on a single axis,
giving the higher speeds
schieved by fixed-wing aircraft,
compled with the memoeuvreability of a belicopter.

Sikorsky also believes that its
longer term future depends on
securing a stake in the next big
U.S. domestic helicopter procurement programme, the U.S.
Army's plan for development of
an advanced light attack belicopter—the LHX. This represents the biggest helicopter
procurement in history, with an
eventual demand for at least

5,000 sircraft.

The leader

avionics, control technology,
and electronic systems integration.

Two other major U.S. helicopter Textron (which
belicopters) and Boeing Vertol
(pert of the Boeing Group,
building the hig civil and milidirectionic systems integration.

Two other major U.S. helicopter Textron (which
belicopters) and Boeing Vertol
(pert of the Boeing Group,
building the hig civil and milidirectionic systems integration.

Two other major U.S. helibelicopters) and Boeing Vertol
(pert of the Boeing Group,
building the hig civil and milidirectionic systems integration.

Two other major U.S. helibelicopters) and Boeing Vertol
(pert of the Boeing Group,
building the hig civil and milidirectionic systems integration.

Two other major U.S. helibelicopters) and Boeing Vertol
(pert of the Boeing Group,
building the hig civil and milidirectionic systems integration.

Two other major U.S. helibelicopters) and Boeing Vertol
(pert of the Boeing Group,
building the hig civil and milidirectionic systems integration.

Two other major U.S. helidepter manufactures.

Two other major U.S. helidepter manufactures.

Two other major U.S. helidepter manufactures.

Two other major U.S. helidepter of the Boeing Group,
building the hig civil and milidepter of the Boeing Group,
building the hig civil and the fertile perton of the Boeing of Hight
helicopters) and Boeing of Hight
hel

tionise the military helicopter market in the years shead and have an eventual impect also on civil helicopter design. Sikorsky, selected the UK Ministry of or example, has a \$77m contract from the National Aeropanics and Space Administration to flight test the "E-wing" concept.

The LHX airframe will be of advanced composite materials, reducing the aircraft, making extensive me cial operations and electronic materials, reducing the aircraft and easier of advanced composite in the composite aircraft in the year and the search and reasons, appearance place in the earlier of advanced composite in the composite aircraft in the year and have an eventual impect also on civil helicopter design. Sikorsky, selected the UK Ministry of or example, has a \$77m contract from the National Aeropanics and expected the "E-wing" concept.

The LHX airframe will be made cost and making it estentials, reducing the aircraft and easier of advanced composite airframe will be of amphibious assault, weight and cost and making it estentials by radar.

The LHX airframe will be of advanced composite airframe will be of amphibious assault, weight and cost and making it estentials to require all of all the estandard belicopter rotor during vertical and low-speed flight that a ligher speeds the rotor is stopped and then functions aerodynamically like a fixed in the Army's Advanced to replace in these rotors in the example of a supplying composite in a leader in applying compo

Guided weapons industry on strong growth track

Missiles LYNTON MCLAIN

THE guided weapons industry is set for unprecedented growth as military planners assess the implications of the rapidly rising cost of new fighter aircraft and look increasingly to mis-siles and their advanced electronics to meet defence requirements into the 1990s, Missiles are already emerg-ing as a major force as plan-ners recognise they can no longer afford the high cost of

a range of different and in-creasingly expensive aircraft.

This is happening despite the start of successful multi-nat-ional programmes aimed at sharing the costs of developing the new generation of multi-role aircraft. The Anglo-Ger-man-Italian Torondo combined interceptor, strike and bomber aircraft is the most recent ex-

The Tornado is in full production in the three countries at a purchase price of about £17m each for the interceptor

Yet even before the Tornado has finished its production run, there are doubts about its sbility to survive in sufficient numbers over enemy territory to drop its bombs without the

aid of airborne missiles.

This has led to the evalua-tion of stand-off missiles, with the Tornado launching them et a distance from the target. The Tornado is to be fitted as soon as possible with the British Agrospace ALARM air-launched anti-radiation missile. ALARM is designed to home in on enemy radar and electronic installations. knock them out

installations. knock them out and allow the aircraft to carry out its mission.

BAe has a £200m fixed-price cootract with the Ministry of Defence and ALARM is currently one of the lead programmes at BAe Dynamics group factories, along with the BAe Sea Eagle enti-ship missile.

BAe also wan recently e £130m fixed-orice contract for the vertical-launch Seawolf missile system from the MoD. missile system from the MoD. The VL Seawolf is to be the anti-missile defence system for the Royal Navy's proposed Type

High costs

· Future fighter aircraft are likely to cost at least \$2bn for the initial research and development alone. The R and D costs of the U.S. B-1B strategic bomber are substantially greater. One B-1B homber costs a record \$562.68m in the fiscal year 1984 procurement estimates by the U.S. Air Force. With such high costs few totally new combat aircraft can be expected over the next de-cade and beyond. Only the current proposals for e "European fighter," and the comparable U.S. programme for a "tactical fighter derivative air-craft," are likely to emerge as the major firm programmes in the near future, for service in the 1990s.

Instead, Western military planners are putting ever-increasing resources into the development of missiles and weapons systems, designed to be launched from aircraft. A total of £2,385m is to be spent in the UK in the current financial year on guided missiles, weapons systems, electronics and instruments for the Royal Navy, the Army and the Royal Navy, the Army and the Royal Air Force. This figure is over a third—34.5 per cent—of the gross UK defence production expenditure in 1984.85. In the U.S. the total missile

procurement for the Air Force alone comes to \$8,570.8m. This is over 27 per cent of the total spending by the U.S. Air Force on missiles and eircraft in fiscal year 1984, according to

Four main initiatives are used for collaborative missile programmes in Nato. The aim is to increase combat effectiveness; strengthen the military and industrial capability of the Nato. Neto alliance; reduce unneces-sary duplication of programmes and conserve defence resources through greater standardisation inter-operability

found to be compatible the Nato partners interested in particular weapons may start shared development pro-

Congressional statistics.

These developments, in the U.S., the U.K and Western Europe, are carried out more and more through multinational collaboration, which spreads the cost and improves the chances of standardisation of weapons among the Neto members.

Four main initiatives are used for collaborative missile programmes in Nato. The aim is to increase combat effective-

the late 1980s. The company has fractors to bid on European; already forecast that o production line for the "European".

ASRAAM missile will be set up in the U.S. under licence, with further example of Neto collab-The Memorandum of Under missiles entering service in the standing (MOU) for Advanced late 1990s,



The Sky Flash zir-to-air missile is shown under production at the British Aerospace Dynamics Group's factory at Lestock,

Air-to-Air Missile Systems, signed by the U.S., UK, West Germany and France in August 1980, was the first to use this concept. France has "special observer" status; the rest are full participants. full participants.

Under the MOU, the U.S. is developing and will produce the AMRAAM advanced medium-range air-to-air missile. West Germany and the UK are jointly developing and will pro-duce the ASRAAM advanced short-range air-to-air missile. The memorandum allows the

participants to procure, co-assemble, and/or produce the others' missile if required. The egreement is designed to reduce unnecessary duplication of programems for the development of missiles that the U.S. on the one hand and West Germany and the UK on the other

Under these agreements the U.S. will not have the cost of aircraft, air-delivered weapons, developing the next generation electronic warfare, tactical restort-range air-to-air missile. connaisance and intelligence, Similarly, the UK and West avionics and landing systems. Germany will not have the cost of developing the next genera-tion of medium-range air-to-air

The U.S. Department of the Air Force put the cost of research, development, testing and evaluation of AMRAAM programme in fiscal year 1984 at \$188.6m. In addition, an estimated \$62.9m is budgeted to be spent on procurement of tho siles this year.

ASRAAM is being developed hy British Aerospace Dynamics Group, as lead contractor in Britain, and by Bodenseewerk craft. Talks on the short-range Gerätetechnik (BGT) of West anti-radiation missile heve been Germany under a fifty fifty under way between Canada, foint venture. Italy, the Netherlands, the UK, foint venture. Italy, the Ne The two formed a joint com-and the U.S.

British Aerospace was chosen at the end of June 1984 as the lead contractor in a consortium of four European companies conducting a feasibility study into the manufacture in Europe of the advanced medium-range of the advanced medium-range air to air missile (AMRAAM). The AMRAAM is under de-velopment in the U.S. The other companies are Marconi Space and Defence Systems of the UK and Messer-

schmitt-Boelkow-Blöhm AEG-Telefunken of West Ger-The second initiative on col-

laboration affecting missile pro-grammes is the Nato National Armament Directors Periodic Armaments Planning System, agreed four years ago.

This aims et harmonising operational requirements, exchanging technical information and exploring opportunities for co-operation in tactical fighter

Three air-to-ground missiles are being considered for co-operative feasibility study and development. These include the long-range stand-off missile (LRSOM); a short-range anti-radiation missile (SRARM) and a low-cost powered dispenser

for weapons systems (LOCPOD).

Discussions prior to MOU negotiations have been under way between West Germany, the UK and the U.S. on the stand-off missile, which could be carried by the Tornado air-craft Talks on the sbort-range

Sidewinder

The U.S. does not propose to develop its own short-range and Italy. Discussions been the U.S. and Italy have been the U.S. and Italy have been the U.S.A.F. of a further than the U.S. and Italy have been the U.S.A.F. of a further than the U.S. and Italy have been the U.S.A.F. of a further than the U.S. and Italy have been the U.S.A.F. of a further than the U.

weapons. the U.S.A.F. of a turtner Live standing.

Under the first the "family Sidewinder Alman missible at. The fourth initiative involves of weapons" concept. Nato re-a cost of \$194 km in inscribers at the leaf hours of the form of the first three involves of the land of the land

oration on missile programmes.
The group, which comprises
British Aerospace Dynamies.
Aerospatiale of France, and Messerschmitt - Boelkow -Blöhm of West Germany is coordinating development work on a third generation of anti-tank missiles, known as the

Trigat programme. . . The Trigat missile is expected to involve a medium-range laser-beam-riding missile to re-place the Milan anti-tank missile from the early 1990s. The programme is also likely to involve a longer-range infra-red boming missile to replace the Swingire and Hot anti-tank missiles. Substantial production of this missile is expected. tion of this mustle is expected. The other major ground-lamched missile system now under investigation in the U.S. as well as Europe, is the third generation multiple launch rocket system (MLRS). The first version is well-established with U.S. forces. The second, MLRS II, version is now being developed by Vought of the U.S.

MIRS III is at an early stage. of development, with competing consortie from the U.S. and Europe siming to win full development and production contracts. The two consortia are led by General Dynamics and Hughes respectively.

Team

The General Dynamics team also includes Sperry U.S., the Bracknell Division of BAe Dynamics, Dynamit Nobel of West Germany, SEP of France and Scicon of Britain. The Rughes team includes Aerospetials of France and Special of France and Second Secon spatiale of France, MRB of West Germany and the Stevenage Division of BAe Dynamics BAe Dynamics has also joined the Italian Oto Melara

joined the Italian Oto Melara gun manufacturer in a team-ing agreement, signed in June 1984, to try to win a 2300m contract from the Carladian Federal Government for the low-level defence of the Canadians two skrifelds and

Canadians' two sirfields and field army in Europe. Bids for the work have to be submitted by the end of this month.

RAe Dynamics has offered the Canadians the Rapler missile ground to air defence system, radars and communications equipment. The agreement with Oto Meiara enables the two communications of the communications of th ment with Oto Melara enables, the two companies to offer a comprehensive system incinding OM's four-barrel 25 mm. Sidam gun. Oto Melara is to make arrangements for Canadian industrial participations. tion and offsets in the work The agreement follows the greement signed last April between BAe and Garrett Manufecturing, of Toronto, when Garrett became BAe's Canadian

industrial partner for the

semination of offset

ONLY GE CAN GIVE AIRLINES A NEW ENGINE WITH THE LOWEST OPERATING COST AND HIGHEST THRUST BY 1985. the CF6-80C2 features advanced To increase profits withflowpath design to reduce pressure losses; refined cooling techniques for out sacrificing high improved turbine efficiency; plus lighter, stronger, fewer parts. These performance add up to lowering the cost of engine or advanced ownership, by design, GE's unique technology, airlines can count on the GE Best of all, airlines won't have to Advantage that comes with the new CF6-80C2 engine. It's the wait until the 1990's for this costideal combination of up to 62,000 conscious engine to come off the drawing boards. The CF6-80C2 will lbs. of thrust and a record-breaking be ready to fly next year. And that low in specific fuel consumption.

will give CF6-80C2 owners the GE

Advantage over competing airlines.

ADVANTAGE

Midland Bank in Aerospace

Aircraft, engines, simulators, satellites and launch vehicles; these products demand the support of banking facilities tailored to individual requirements.

Midland Bank can deliver a comprehensive range of national and international corporate banking services to meet these needs from key centres throughout the world.





Midland Bank International

Midland Bank plc, Aerospace, Brabant House, 59 Gracechurch Street, London EC3V 0JH. Telephone No: 01-623 9393.

Visit us in the Midland Bank Pavilion at the Exhibition

Cautious optimism about long-term demand

Engines MICHAEL DONNE

THE WORLD'S major aeroengine manufacturers, like tha airframe builders, heve suffered severely through the recession in world airliner markets, but they are hopeful that the signs of improving orders for airliners will be reflected soon in new orders for power-units

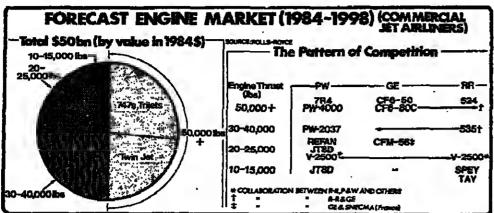
Such orders as are available are being fiercely contested, bowever. The pressures on the aero-engine makers for keen aero-engine makers for Reen initial prices, accompanied by favourable financing terms, high quality and prompt delivery dates, have become

As the engine makers slowly climb out of the trough of the past two or three yeers they remain optimistic about the

remain optimises about the long-term high demand for their products.

Rolls-Royce, which has conducted a severe retrenchment programma during the recession, laying off a significant number of workers, now believes that the situation is improving. But, like other major engine manufacturers, it remains 170 passengers.

The accompanying chart shows bow Rolls-Royce sees this market being divided. In addition, in the field below 10,000 lb thrust, there is likely to be a further substantial too far from the Boeing Commall-thrust jet engines, orders currently in hand but Rolls-Royce sees the world not delivered), with the mili-



commercial jet airliner market amounting to more than 5,000 aircraft over the next 15 years, of which only 900 have been or which only suo have been ordered so far. The motivating force behind this inflow of orders will be an average growth in world air traffic of

that the situation is improving. But, like other major engine manufacturers, it remains cautious about the immediate future.

For the longer-term Rolls-Royce like other manufacturers, believes the prospects are good, with an eventual world market for commercial turbojets worth \$500n (in 1984 dollars) up to about 1998 in the main categories of engines giving more than 10,000 lb thrust.

Airbus A-320 types, mainly seating between about 130 and 170 passengers.

Pratt and Whitney, the world's biggest aero-engine manufacturer, spreads its forecasts over a wider area. It argues that from 1985 to 1994, the total world market for ciraft will amount to \$573bn, covering commercial, military and general aviation aircraft, with the turbine engine market giving more than 10,000 lb start.

mercial Airplane Company's estimate of \$172bn including

The turbine engine components of these sales are \$71bn for commercial turbine engines (rather higher than the Rolls-Royce forecast) for military en-gines and \$23bn for general eviction engines.

Encouraging

Like other engine and airney sees the potential for sus-tained traffic growth as enouratained traine growth as enouraging," provided the current
economic recovery can be maintained. P. and W. expects world
air trific growth in 1984 to
approach 8.5 per cent, up from
4.7 per cent in 1983, and suggests that growth over the next

occur in the second balf of the 10 years to 1994, as the econo-

tary market accounting for and thet in the first quarter of \$320bn of sales and general aviation \$75bn.

and thet in the first quarter of 1984 alone it received orders for nearly four times as many larga

nearly four times as many larga commercial jet engines as in the whole of 1983, including engines built by its partner CFM International (in which Sneema of France is also involved on a 50/50 basis).

GE says the fastest selling engine is the new GE-Sneeme CFM-56-3 which powers the new twin-engined Boeing 737-300. Engines have been ordered this year for more than 74 aircraft. year for more than 74 aircraft, with the total number of CFM-56-powered 737-300s on order now standing at 124.

aircraft, there are now few entirely new major engines likely to be required up to the year 2000, and most of the engines, for both civil and military, use likely to be needed have aircady been projected. It believes that as much as 60 per cent of the forecast sales of aircraft and engines will occur in the second half of the seco ment or soon will be.

This does not preclude the continued refinement of exist-

ing aero-engine programmes, mic recovery strengthens, and however, and indeed a substantial namnal sales of \$20hn a year could be attained in the early 1990s.

General Electric of the U.S., aero-engine builders, also says that a recovery in commercial that a recovery in commercial available for 150-seater ing costs of advanced techning costs o ing aero-engine programmes,

in one hig jump forward with a new version.

example, with the Rolls-Royce RB-211, with its 535 version for such aircraft as the Boeing 757 twin-engined airliner being steadily improved through the 37,400 lb thrust C model to the 40,100 lb E4, with the likelihood these two engines will enhance of other new variants to come their further development and as the airlines press for im-provements, especially in fuel

improved its most powerful designed to achieve.
version of the RB-211, the The respective initia version of the RB-211. the The respective initial 15 per 524D4, producing a further 2 cent shares of each company in per cent improvement in the the other's engine programme cruise performance of the Boe- will gradually build up to 25 per ing 747 Jumbo jet. This saves cent, covering finance, develop-

provide 54,000 lb take-off thrust Royce will build the CE6-80C2 compared with the current in the UK.
53,000 lb, as well as at least Another internationally signianother 1 per cent saving in cruise fuel consumption and lower running costs through improved component durability. Inevitably, bowever, the soar-

power units, especially those for would have been dismissed as commercial airlinets.

It is also likely that there U.S. aero-engine industry. may be more derivatives of One of these has been the existing engines, in which a decision by Rolls-Royce and sufficient number of refine General Electric of the U.S. to ments to any one engine will collaborate in the future justify bringing them together development of engines in two broad fields—on the Rolls-Royce RB-211-535 for medium-This is already occurring, for to-high thrusts (more than example, with the Rolls-Royce about 40,000 lb) and on the General Electric CF6-80C2 series in the bigh-thrust range

(over 56,000 lb). The joint application of GE and Rolls-Royce technologies in consumption.

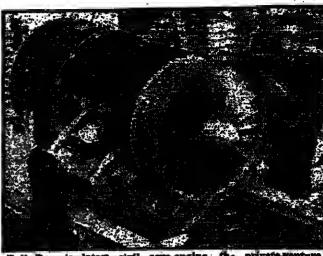
Comparable refinements are panies the opportunity of jointly also likely to emerge from the developing new and still better 535's direct competitor, tha recently-certificated Pratt and to-high thrust segments of the whitney PW-2037. Rolls Royce market as they may occur.

is already offering the 535-H4
as a possible power unit for the projected new tri-jet airliner design under consideration by McDonnell Douglas.

Rolls-Royce has also further range which the CF6-80C2 is incorporated in the property of the Research of the

ow standing at 124.

about \$300,000 per aircraft a ment and component manufacture, as well as an exchange of



Rolls-Royce's latest civil zero-engine, the private-venture Tay, recently made its first run on the testhed, achieving thrusts in excess of 12,500 lb. The Tay is destined to power both the Folker F-100 twin-engined jet airliner and the U.S. Guifstream IV executive jet, with orders already placed for over \$400m-worth of engines

launching aid for Rolls-Royce, out of that company's £226m share of the venture, but Pratt and Whitney will be investing ncant development has been its own money. The investing the formation of International is to offer the engine initially comprising seven companies from five nations.

They are Palla Towns. in two thrust versions, 23.000 lb and 25000 lb, and to have it certificated by 1987 so that it can be available for 150 seater

Missibishi Heavy Industries and Missibishi Heavy Industries) jointly represented by Japanese Aero-Engines Corporation, with 19.9 per cent. The work shares will very slightly from these figures.

These companies are now developing a new engine, the V-2500, designed initially to power the new generation of 150-seater airliners such as the European Airbrus A-320 as well as further developments of both tha existing Boeing 787 the use of such hig aircraft as the use of such hig aircraft as the Boeing 747 Jumbo jet. The TA-11 would have a payload of family and the McDonnell Douglas MD-80 Series, or any new airliners those companies may decide to build.

The UK Government is supposed to the proper such as the supposed to the proper such as the family and the McDonnell and the McDonnell artilized to the proper such as the family and the McDonnell artilized to the proper such as the family and the McDonnell artilized to the proper such as the family and the McDonnell artilized to the proper such as the family and the McDonnell artilized to the proper such as the family and the McDonnell artilized to the proper such as the family and the McDonnell artilized to the proper such as the family and the McDonnell artilized to the proper such as the family and the McDonnell artilized to the proper such as the proper suc Kawasaki Heavy Industries and U.S. (Snecma-General Electric)

The UK Government is sup-porting the V-2500 with £60m in of small sirliners such as the Fokker F-100 and the U.S. Gulf-stream IV. Certification is planned for mid-1986, with deliveries by the end of that

year.

In yet another collaboration
Rolls-Royce is working with
Turbomeca of France on the
development of the RTM-322. initially designated as a turbo-shaft helicopter engine. Its core, however, can be used for a wide variety of other power units, including one for small business jets. The cost of this venture is estimated at over £100m. is estimated at over £100m, shared equally between the UK and France.

Collaboration growing

CONTINUED FROM PAGE T

In the military field demand will also remain consistently high especially for light tactical combat aircraft, is existing air forces re-equip to keep abreast of advancing weapons technology, and others, especially in the developing world, seek to build up their defence forces.

In many cases, the steady high demand for military air craft and guided weapons has belped to keep the civilian sides of some eerospace companies alive during the recession, and will continue to do so for some

Nevertheless, as with civil eviation, the long-term outlook for military aircraft remains

British Aerospace's current forecast is that between now and the end of the century \$600bn in current dollars will be spent on military air-craft worldwide (excluding the will be spent on initiary attraction of the control aircraft, such as maritime recon-naissance, and airborne early

Pratt and Whitney's military forecast is for about 20,800 air-craft, worth some \$320bn in constant 1985 dollars, again with tactical aircraft accounting for the biggest share, some 9,550 aircraft worth about \$184m.

If in addition to these figures, the addition to these figures, the anticipated massive markets for guided missiles of all kinds, and the growing market for spacecraft, are taken into account — each likely to be worth many billions of dollars — it can be seen that world aerospace will continue to be extremely busy.

Probably the most significant

extremely busy.

Probably the most significant aspect of world aerospace since the last Farnborough International Air Show two years ago, and indeed in the past year since the Paris International Air Show in 1983, has been the growth of international collaboration, with not only the introduction of new prointroduction of new pro-grammes, but the extension of existing ones and the emerg-ence of plans for new ventures.

New ventures

Among the major new ven- V/TOL tures have been the launching of the A-320 150-seater Airbus Engines by Rolls-Royce, Pratt & Whitney of the U.S., Motorenner Turbinen Union of West Germany, Fiat Aviazione of Italy and Japanese Aero-Engines to build the new V.2500 engine for the A.320 and any other potential "150-seaters" that may emerge.

New international collaborative ventures now planned in the commercial aviation field include liaison between Short Brothers of Belfast and Embraer of Brazil to develop a new generation of "commuter" and "regional" airliners for the 1990s and beyond, to replace eventually the existing Embraer Brazilla and the second the pos-

In the military field demand Shorts 360, and other such air stbilities of collaboration. The

support for its 767 airliner programme, is anxious to get more gramme, is anxious to get more support in any new airliner venture it may undertake, especially in the 150-seater market. Fuji Heavy Industries of Jepan has already signed a deal with Fokker of the Netherlands to build tail components. for the new Fokker F-50 50-seat turbo-propeller airliner.

Collaboration In commercial aero-engines. Rolls-Royce has once again potential also for exploitation into jet or turbo-propeller engines for other uses, such as a possible new business alreraft jet engine.

In the regional airliner mar-kets, Saab of Sweden is working with Fairchild of the U.S. to build the SF340 commuter and regional arriner; Aerospatiale of France is working with Aeritalia of Italy to develop the ATR-42; and the Indonesian technology minister, Dr B, J. Habibie, has suggested international collaboration for a new Indonesian desirated 100 center. Indonesian-designed 100-seater turbo-propeller airliner.

inrbo-propeller airliner.

In the military field, efforts are under way to develop a new European Fighter Aircraft (EFA) programme including the UK, Brance, West Germany, Italy and Spain, that would involve not only the airframe companies of those countries but also their aero-engine companies on a new power-plant. France and West Germany are already working on a new antitank helicopter, the PAH-2; Italy and Brazil are working on the new AMX fighter; while the UK and U.S., through BAe and McDonnell Douglas, are working on the Advanced AV-SB Harrier and closely studying together the possibilities of supersonic V/TOL.

In the UK other military col-laborative ventures are likely on the provision of a new basic by the European Airbus Indus-trie consortium, and the forma-trainer for the RAF to replace tion of International Aero the ageing Jet Provost, and on Engines by Rolls-Royce, Pratt & a new tactical helicopter to

bitter fight not only for mar sustain technological progress to force initially unwilling par ticipants eventually into the Factors encouraging growth of international laboration are not only the wider spread of the develop-ment cost burden, but also the greater production runs that can be achieved, thereby help-ing to reduce unit costs. More-over, some of the former criticisms of collaboration— the higher infrastructure costs stemming from the need for in-

creased international communi-cations and the physical trans-fer of finished components to common final assembly lines have evaporated as the techniques of collaboration have been refined. Satellite co

provide instantaneous data transfer and voice links, while the availability of large capacity transport aircraft makes the shipment of parts easy. There are still problems—language differences of the extended of the communication of the com guage differences—for example—but there are now so many collaborative ventures, and the difficulties are so well under-stood, that they no longer pose the seemingly insuperable prob-lems they once might have

Diplomacy Nevertheless, stitching up

such collaborative arranger still takes much time and patience, and 2 great deal of skilful diplomacy. This is experienced to date in reaching agreement between the five nations trying to put together the new Eurofighter. While there is still talk of individual countries "going steme" in the event of a complete collapse of any collapse. countries "going alone" in the event of a complete collapse of any collaborative venture, the likelihood is that eventually Europe will draw together, if only to prevent the wery large market for such an aircraft falling by default to the powerful U.S. aerospace industry, which has plans for a new tactical combat aircraft of its own for the U.S. Air Force.

One final point needs to be sitessed—that even where there is international collaboration, there are usually two or sometimes even three sentures struggling for chares of the same market. Competition in world aerospace is fierce, and it is intensifying. There are very few markets indeed where any one manufacturer has it all his own way—perhaps fine most significant instance is Boeing with the massive yev—finance let. The rewards for sincisk in any single market weekel

jet. The rewards for success in any single market civil.
military, guided washons or space, can be substantial but the penalties for failure 180



Plessey Systems in Aviation at Farnborough International'84.

Aviation is a major example of a market in which Plessey technology has been in the forefront for fifty years.

Today, commercial aircraft flying with more than 25 major airlines, and military aircraft serving in more than 50 of the free world's airforces, rely on Plessey systems and equipment.

In defence, Plessey has considerable experience as a prime contractor for multimillion pound projects, and a systems

capability covering radar, intelligent displays, communications and avionics.

The establishment or updating of airports and the provision of comprehensive air traffic control systems are other important areas where Plessey technology is playing a leading role.

Plessey - reliability in the air, and on the ground - at the Farnborough Air Show - September 2-9.



Ariane success confirms European independence

Space ventures LYNTON MCLAIN

August 28 1984

Tity of the state of the first of the state of the state

in marginal po

the least Section of the least

"" another collec-

Trace E

. dresenated use

beit ther chame be

ाजा हम करते हिस other page

on the for smile

ं । । । वर्ष क्षेत्र १६

er mateit i na 🗟

to a word to be partecard.

OWING

the experience of an inches promit cets area

er the only was a real and the second TO A STANSON OF THE PARTY OF TH The second second

to Jean le 🗺

to applying #4

ecceptably \$

the second second

100 and 100 an

THE LAUNCHING of the tenth and most powerful Ariane rocket from French Guiana on August 4, with two heavyweight satellites placed in orbit, gave e boost to Europe's space industry at a time of debate on its future autonomy and ability to undertake industrial and commercial work in space independently of the U.S.

The success came after the U.S. civil and military space independent two satellites into correct orbits and after the U.S. National Aeronautics and Space Administration implications for the independence of European governments in the exploitation of space, for the progress of high technology companies in Europe, and for their future ability to compete with the U.S. in space.

The U.S. civil and military space programme already eccounts for ebout 30 per cent of public research and development expenditure in the U.S., which is six times as much as in Europe.

Europe's answer, expressed Eurospace. The faster pace will deliver varius masses into geothrough commitments by be marked by the arrival of stationary orbit (where the European Space Agency to the space station project in turn depends on its answer to the space of the stationary orbit (where the satellite remains over a selected point on the Earth's surface) and 15 tons in low earth orbit depends on its answer to the such as Telecom 1 in France, and 15 tons in low earth orbit depends on its answer to the such as Telecom 1 in France, and 15 tons in low earth orbit depends on its answer to the such as Telecom 1 in France, and 15 tons in low earth orbit depends on its answer to the such as Telecom 1 in France, and 15 tons in low earth orbit depends on its answer to the such as Telecom 1 in France, and 15 tons in low earth orbit depends on its answer to the such as Telecom 1 in France, and the stationary orbit (where the satellite remains over a selected point on the Earth's surface) and 15 tons in low earth orbit depends on its answer to the satellite remains over a selected point on the Earth's surface) and 15 tons in low earth orbit in the IVK. depends on its answer to the ITALSAT in question of how far Europe in the UK. wants to move towards a space industry completely independent

of the U.S.

The form of debate, the 11-nation European Space Agency and the Eurospace group of manufacturers in the EUTELSAT series.

Outside Europe, regional or

to exploit the potential of space

similar developments are exfor scientific, industrial and commercial, work that will remote sensing satellites. Inemerge strongly in the 1990s.
Eurospace comprises Aeritalia and dustrial and commercial prosfor Italy, Aerospatiale and matra of France, British Aerospace, and Dornier, Laben, Messerschmidt Bölkow Blöhm and ERNO of West Germany.
The aim is to provide a coordinated approach to Europe's future in space from the point of ylew of the aerospace transport systems over of view of the aerospace

ment of a comprehensive European space industry, fully independent of the U.S. by the year 2000. The programme includes a hypersonic space glider and a manned European launcher to be operational by

The proposals have immense

what role, if any should the European space industry have in the \$8hn plans by the U.S. for the first Manned Space Station, to be in orbit by about 1995.

Assured

group of manufacturers in the space industry, favour much greater European autonomy in space technology.

Eurospace has the more ambitious programme, and says decisions have to be taken by next year if the European industry is to be in a position to exploit the potential of space for scientific industrial market.

Similar developments are expected in meteorological and

and vacuum environment of space, possibly with tunnamed should be decided by 1986, to should be decided by 1986, to Shntile. EURECA would be kept platforms in low orbits.

At the heart of the proposals is the urgent need for Europe to place greater emphasis on space transport systems over the next decade. This reflects the advent of manned and anto-Eurospace has, produced a the advent of manuel and anto-structure. The ESA continues Shuttle.



The remarkable growth in the size of Communications Setellites over the past 20 years is shown in this diagram from Hughes Aircraft of the U.S. (one of the world's biggest manufacturers of satellites), with the tiny Early Eird of 1964 on the right, and the latest giant, the Intelsat VI, on the left

These involve an unmanned European launcher, able to deliver varius masses into geostationary orbit (where the 2itons of satellites launched by the latest Ariane III rocket. The same next-generation launcher should also be capable

of lifting men into space by 1997, Eurospace recommends. Another "long-term necessity" for Europe is the avail-ability of an autonomous manned flight capability. This could be provided by a pro-gramme similar to the French HERMES study of a 15-ton

hypersonic glider.

Launched by a post-Ariane IV

European rocket, HERMES

could carry four or five people

low-earth orbit on e European launching rocket.

ESA points out that this glider, or "Spaceplane," would not be launched in the period under study (1985-95) and it also helieves that more studies are period to the studies of the studies are period to the studies are studies are studies are studies. ere needed before deciding that such a "Spaceplana" is necessary.

Co-operation

ESA bas based its proposals for in-orbit infrastructures (IOI) primarily on co-operation with the U.S. manned space station programme. This would ebsorb 60 per cent of the budget resources for the IOL

ESA regards EURECA as a "significant first step towards space industrialisation." It would be used for microgravity disciplines including commercial activities, and could be launched in October 1987 as the EURECA-1 mission.

The EURECA-1 "utilisation

programme" would follow, with instruments and experiments launched and retrieved and a turnround time of ebout two years starting in 1989.

ESA also proposes a Mark-2 version of EURECA, with applications for remote Earth observations, scientific research and technology demonstrations. Eurospace supports the ESA proposal for the EURECA European Retrievable Carrier and urges support programmes to develop robotics for use with EURECA.

ebsorb 60 per cent of tha budget resources for the IOL

The rest of the IOI programme would involve technical studies of such problems et re-entry and the start of a European studies of such problems et re-entry and the start of a European stronauts to perform and the development of European astronauts to perform design autonomous research work. These modules could be developed EURECA or European Retrievable Carrier.

EURECA

"under U.S. leadership," with ments, cryogen European astronauts to perform design autonomous research work. These modules could be developed later into an independent European space station.

EURECA

"under U.S. leadership," with ments, cryogen design autonomous research work. These modules could be developed later into an independent European space station.

EURECA

"under U.S. leadership," with ments, cryogen design autonomous research work. These modules could be developed later into an independent European space station.

EURECA

"under U.S. leadership," with ments, cryogen design autonomous research work. These modules could be developed later into an independent European space station.

EURECA

"under U.S. leadership," with ments, cryogen design autonomous research work. These modules could be developed later into an independent European space station.

West Germany and Italy have developed later into an independent European space station.

West Germany and Italy have developed later into an independent European space station.

on-this needs to be taken this

It would enable a pressurised payload module to be launched and decked to the U.S. manned space station in 1992.

Timetable

A resource module should also be developed to the same timetable to provide electrical energy and other services to e free-flying payload module. Eurospace also wants a "service vehicle" to carry cargo and crew between the manned space station and the free-flying pay-

load module by 1996.

The first men for these missions would have to be haunched with the U.S. Space Sbuttle. Ariane would be used for carrying cargo. But before the end of the century, if Euro-space's other ambitious plans are realised Europe would have its own launching systems for carrying crews.

Associated with the growth of satellites is the need for date relays to provide permanent communication between eerth and low-orbit stations, platforms and space vehicles, including the transmission of navigational data.

Eurospace wants Europe to have a data relay capacity with a reasonable degree of autonomy by 1990. It also wants the European Space Agency to increase its budget for scientific research in space, but it leaves the question of scientific satellite programmes to interested scientists.
The manufecturers also sup-

port the ESA programme of earth observation satellites and recommend the development of an observation spacecraft for disarmament control.

The European proposals would involve the spending of a total of 11,750 MAU (millions of European account units) for for an average investment of means for Europe to reach its the space transport systems 1,500 MAU a year between 1985 objectives more quickly and at alone from 1985 to 2000. This is and 2000 in terms of 1984 MAU. less cost. These objectives inan average of 780 MAU a year over the period and takes into account post-Ariane IV developments, including the HM60 in 1991.

The permanent objectives of design work to make the rocket a long-term European space capable of launching men into capa an average of 780 MAU a year

The total comprises about 6,600 MAU (59 per cent) for

depleting the possible structure of the proposed U.S. Manned Earth-Orhlting Space Station, in the early to mid-1990s. Such a Space Station would be serviced from Earth by regular relays of the Space Shuttle Manned Reusable Space Transport System. The Station would serve as o staging point from which Sbuttle Vehicles or other spacecraft could move further out into space for a wide variety of missions

a long-term Europe.

policy, according to ESA, should include the need to keep its industrial potential might soon be in jeopardy."

Europe in the forefront of space research, to improve the Europe's position in advanced at technologies and in the mannal in the space race," ESA says. This implies, for the member states of ESA, a mean takings.

The states of ESA, a mean takings.

This compares with the ESA clude telecommunications and proposals to spend 946 MAU earth observation based on an next year rising to 1,500 MAU Ariane launch every two years.

able Carrier.

EURECA is a modular space
platform designed to work in
conjunction with the U.S. Space
station.

West Germany and Italy have
conjunction with the U.S. Space
station.

MAU (59 per cent) for operadevelopment costs and 4,600
MAU (41 per cent) for operatechnologies and in the mantions including post-1997
space research, to improve
development costs and 4,600
Europe's position in advanced
technologies and in the mantions including post-1997
agement of complex undertakings.

ESA regards as a "new frontier" an autonomous Europayload, primarily of materialsto see the Columbus programme,
processing experimental or production units, could be
exchanged or returned to Earth
at chosen intervals on the
Shuttle.

The European space station.

6,600 MAU (59 per cent) for operatechnologies and in the mantions including post-1997
agement of complex undertakings.

ESA regards as a "new frontier" an autonomous European capacity in space for automated and manned orbital
operations.

Continued co-operation with
the U.S. is not ruled out as a
financial effort required." sensing, or communications, operations.

Continued co-operation with states; and a recognition of the Eurospace proposals call the U.S. is not ruled out as a financial effort required."



BEFORE IT PERFORMS IN THE AIR, IT PERFORMS ON THE GROUND.

the most reliable and main- the highest reliability of tainable front-line tactical any world class tactical

700 flights, the Tigershark Hours Between Failure). has met or exceeded all its reliability goals. The

The F-20 Tigershark is operational F-20 will have complete and fully intefighter aircraft in the world. fighter, an unequalled Throughout more than 4.2 MFHBF (Mean Flight) and an unprecedented This designed-in reli-

ability is backed by a

grated support system implemented through the USAF Logistics Command parts replacement provides ing costs over the design and built to be that way. commitment: Northrop will since the cost of mainteprovide F-20 Tigershark spare parts at an econom-

per flying hour.

for accurate budgeting nance, inventory and man-commitment is based on power requirements are

is a potential for saving The predictable cost of millions of dollars in operat-reliable when designed life of the aircraft.

The F-20 spare parts our experience that sophis-

ical guaranteed fixed cost known in advance. There ticated fighter aircraft can be both economical and From the ground up.

Air travel again is growing rapidly, bringing with it problems of financing fleet expansion, and imposing new pressures on airports.

Tight rein on costs as prosperity returns

AFTER THE heavy losses neurred by the world airline industry over recent years as e result of the world recession there are now signs that pros perity may be returning, albeit at present on a modest scale.

Cumulative losses incurred by the world's airlines, as measured by the International Air Transport Association, over the years 1979 to 1983 inclusive are estimated at more than than \$6.15bu. Actual operating losses—that is, money lost on flying eeroplanes on passenger cargo services—amounted

to \$1.7bn.

The balance of \$4.45bn represents the amount the industry has bad to pay over those years in interest on fleet re-equipment. In some years, such as 1979 and 1983, for example, the airlines growth of 5 per cent worldwide, and a slightly smaller growth of 5 per cent in capacity (the number of seats or volume of seats or volume). In some years, such as 1979 and 1983, for example, the airlines achieved operating profits, but were plunged into net losses because of their heavy interests. because of their heavy interest payments.

There are now signs that this pattern may be changing. For 1984, e substantial operating \$75m against the forecast \$250m.

profit of \$1.8bn is forecast. If capacity is increased by only
which will leave e net profit of one-balf of one per cent. then

have you considered it?

in the shortest possible time is ours.

you think

the air and on the ground.

Knowing where to go is your business—knowing how to get you there

Our aircraft is the Cessna Conquest II jetprop, using the latest technology

to combine jet performance with prop economy. Our aircrew and operations staff are experienced professionals who will serve you well in

Hatfield airport offers a unique standard of security and privacy, with none of the delays so common at major public airports. All of this is half an hour from Central London conveniently NW of the City. You will find us competitive, responsive and flexible in planning to meet your requirements—so why not try us and we will show you a

Call us for a quote—it's cheaper than

Telex: 894871 Hatair G

HATFIELD EXECUTIVE AVIATION LTD

Tel: Hatfield (07072) 73534/73559

AIR CHARTER

Cessna Conquest II Propjet (7-11 passengers/350 mph/2,600-mile range)

Airlines

MICHAEL DONNE

about \$250m after interest payments of \$1.55bn, while for 1985, an operating profit of \$1.7bn, end a net profit of \$200m are

The IATA itself is careful to stress that these forecasts are fragile, and that minor changes in the volume of traffic carried and the amount of capacity offered can turn the small profits

of cargo space offered).

But if traffic falls below the forecast by only one-half of one per cent, the financial result would be cut to a profit of only \$75m against the forecast \$250m.

A combination of traffic fall-ing short and capacity being

increased too much would result in the industry falling back into the red, with e forecast loss of \$80m in 1984 and a loss of \$120m

in 1985.

The argument, therefore, is for the airline industry to continue to keep a tight rein on its costs, and in particular to try to avoid increasing capacity by offering too many seats just because it appears that better times are on the way. The director-general of the IATA, Mr Knut Hammarskjold,

IATA, Mr Knut Hammarskjold, has already warned that there are signs on some routes, such as the north Atlantic, of capacity creeping up, ahead of traffic growth, and that now is the time for the airlines to be even more resolute in restrainting transfer countries.

ing such capacity growth.

Throughout the period of recession, the industry has been able to survive anly by extenable to survive any by exten-sive retrenchment programmes, involving cuts in staffs, routes and aircraft fleets, and the sale of properties and other assets.

Although there have been some dramatic examples of retrenchment schemes — the best being British Airways and Pan American—in fact, nearly every airline in the world has been forced to some extent to follow suit. This has not pre-vented some airlines from falling into bankruptcy, although some that fell by the wayside, such as Braniff of the U.S. have been resuscitated, though in truncated form.

Leaner and tougher

The effect of these measures has been to ensure that the industry worldwide is coming out of the recession leaner, tougher and more conscious of the problems of survival than

One result that is already being seen is the welcome return to profits by some of these airlines—with British Airways again a particularly shining example—but there are still far too many airlines losing money, and it may be covered years be and it may be several years be-fore it will be safe to say that the world airline industry is sufficiently not of its difficul-ties to be able to forecast a more comfortable future.

Whether that future will ever be quite as comfortable again be quite as comfortable again for managements as it was in the 1960s and 1970s, when most of the problems were those of growth, is debatable. Over recent years, some difficulties have arisen which would appear to be-permanent, despite the strenuous efforts being made by the IATA and by individual governments to resolve them. One is the problem of "blocked earnings"—the large sums of cash earned from ticket

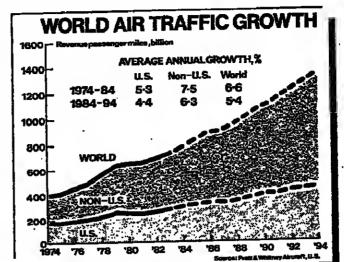
sums of cash earned from ticket sales in the developing world which the airlines are not allowed to repatriate by the governments of the countries in

governments of the countries in which they are earned.

The IATA says that by this past midsummer, the total amount of blocked earnings outstanding was \$864m, and that had it not been for the IATA's efforts to recover some \$500m of such cash, the figure would have been over \$1.4bn. Countries in Africa, tho Middle East. South and Central America and the Far East and South-East Asia are all involved. Asia are all involved.

As Mr Hammarskjold has

cointed cut: "While sympa-



REGIONAL AIRLINE MARKET (Unit aircraft deliveries 1985-94) 1,100 1,700 400 450 U.S. airlines Non-U.S. airlines 750 2,800 850 1,100 850 Pratt & Whitney Aircraft, U.S.

One of the fastest growing sectors of world air transport is in the regional and "commuter" airline market, carrying passengers over short distances linking small communities with each other or with bigger "hub" communities. The table shows the likely growth in this area through the 1980s and

are vital to their trade, com-merce and tourism, and help to earn the foreign currencies they so badly need.

Continued efforts are being made to resolve this situation. but it has to be accepted that the tendency for governments to regard airline earnings as a ready source of interest-free cash is increasing, and no early solution to the problem appears

likely.
Other problems facing the world's airlines include the increasing tendencies on the

thising with those countries the industry, rather than loosen suffering from shortage of hard them. While in Western Europe currencies and acute exchange problems, they must bear in along with the European Economic that air transport loosen somic Commission itself, in specific greater from the countries of the industry, rather than loosen them. While in Western Europe the UK has taken the initiative, along with the Europe and the countries of them. seeking greater freedom for the seeing to compete on inter-national routes, the tendency among many other governments bas been to tighten their grip on

air transport. They refuse to relinquish any degree of sovereignty over their

air transport affairs.
As a result, many bids for cheaper air fares, and for greater competition among air-lines on international routes, have been and still are being thwarted, with no early signs of increasing tendencies on the any significant breakthroughs of design and manufacture, and part of many governments to a similar nature to the Anglothat the operators can only tighten regulatory controls over Dutch "open skies" policy ameliorate it by modifying their

is possible that some may seek similar deal when their own governments. bilateral air agreements with the UK come up for renewal. In principle, however, it seems that major European-wido breakthrough into the era of cheaper

fares is still some way away. This, in turn, is helping to sustain another of the airline industry's major problems— ticket discounting.

It has been estimated that this method of off-loading tickets on method of on-loading treats on to the market throughout the world is costing the industry as a whole more than \$1bn annually in lost revenues on the annually in lost revenues on the face value of the tickets thus disposed of. The supporters of discounting purketshop sales outlets, but even some airline executives) argue that if those tickets were not sold at the cut-rates, they would not have been sold at all, and the revenue loss would have been much greater.

and the revenue loss would have been much greater.

Moreover, it is claimed that in some parts of the world, especially the Middle East and South-East Asia, ticket discounting has become elmost a way of life in air transport, so deeply embedded that it will be almost impossible to eradicate it.

Some airlines which publicly declare their abhorrence of ticket discounting, resort to it

ticket discounting, resort to it behind the scenes. Nevertheless, behind the scenes. Nevertheless, the airlines at the official IATA level are trying to establish procedures to minimise, if not eradicate, ticket discounting, with what is claimed to be some degree of success, although, as with blocked earnings, it would appear that discounting will remain a problem for years to come.

There are many other worries facing the industry. They vary throughout the world. The growth of environmental objec-tions to noise at airports causes particular concern, although the airlines themselves argue that noise is the function of aircraft

announced by those two govern-ments earlier this summer. The airlines argue that it is The airlines throughout the for the manufacturers in work rest of Western Europe are much harder, and spend greater watching the progress of the sums, on noise attenuation and Angio Durch experiment, and it much harder, and spend greater sums, on noise attenuation and reduction, with the active sup-port, moral and financial, of Airports.

THE PERSON NAMED IN

51 th 1331 1 20 48

A COLUMN TO A COLU

A SECTION AND A SECTION AND ASSESSMENT OF A SECTION ASSESSMENT ASSESSMENT

A STATE OF THE STA

THE PARTY OF THE P

N. TIPOT

n where

2019 2019 2018

Mining and

gen bar de

A. Mares ...

120 144

may the second

Saltens in the Saltens

28 7/8" (4) 1 minut

TO BUTTON TO THE SECOND

محجج والإمامة والإرقاق

But bereiter

Prisec

2 1 54°

THE PARTY OF

1100

Onieter aircraft

There is little doubt that the new generation of airliners-the Airbus A-310 and the new A-520 the Boeing 737-300 and the McDonnell Dongies MD-30 series—are quister than those of previous generations, and further reductions in noise, though perhaps modest, are on the war.

Probably the airlines biggest difficulty over the years shead will be earning sufficient returns on capital to enable them to pay for the new fleets they will

require.
The IATA has estimated that its members, more than 130 of the world's major sirlines, will have to find shout \$105hn, with the world as a whole (including the many non-IATA), airlines, requiring some \$150bn to finrequiring some \$15000 to finance new fleet investment through to the easily 1990s.

The numbers of aircraft involved vary, but it is generally believed that the IATA airlines alme will require some 2,600 airlines of varying sizes (about 1,100 as replacements for existing ageing or full-inefficient fleets and about 1,500 to meet traffic growth) up to about 1993.

traffic growth) up to about 1993.
Paying for these aircraft will pose a major problem. If has been estimated that to finance this re-equipment programme, the airlines will need an oper-ating profit representing a re-turn of about 7.5 per cent on turn of about 7.5 per cent on revenues, whereas at present, the operating profit represents only about 3.6 per cent of revenues, with a forecast of 4.5 per cent for 1985. The industry is thus not yet in a position to pay for its re-equipment.

This is already giving rise to a plethora of new methods of airliner financing, with new forms of leasing being devised to ensure that not only can the airlines acquire new equipon-

airlines acquire new environ-mentally acceptable and efficient equipment, but that the manu-facturers also can achieve some returns on their own invest-ments in new designs of engines

ments in new designs of engines and alrirames.

In all, as Mr Hammarskiold himself has said: "While there are still doubts and uncertainties on some major issues, the final message is that there are grounds, for looking to the funce; with increased coult fidence in an overall improvement in the arrine industry energyment."

Operating result Not interest payable Result after interest	1978 950 550 400	1979 150 500 -350 Loss	1980 - 900 950 - 1,850 - 1,668	1981 600 1,300 1,900 Loss Source: In	1982 200 1,600 1.800 termetional	1,356 1,600 -250 1,668	1,800 1,550 250	1,500 200	.15
				Source: In	ternetional	Vit 1 tavab	OFT ASS)C18.00U-	_

IATA TOTAL INTERNATIONAL SCHEDULED SERVICES

Leasing schemes meet high costs

Finance MICHAEL DONNE

WITH the estimates for future fleet acquisitions by the world air transport indus-try ever the next decade try ever the next decade varying upwards from \$172bn to replace both ageing fleets and keep abreast of anticipated traffic growth, it is clear that the airlines face a major problem—finding the money. Although the airlines are now slowly climbing out of the severe difficulties imposed upon them by the recession of the past two to three years, few of them are as yet earning significant profits.

Even where they do so on direct operating account, the next result is still a loss after existing interest payments on

existing interest payments on fleets often acquired several years ago are met.

years ago are met.

The International Air Transport Association has estimated that this year the financial result for the industry will be an operating profit of about \$1.8bn, but after interest of \$1.55bn has been met the overall result will be a net profit of only \$250m.

This interest burden—which covers only the payments by the IATA's member alvines and does not take into

airlines and does not take into account interest payments by account interest payments by the non-IATA airlines world-wide—has been climbing, from about \$550m in 1978 to reach \$1.3bm in 1981, \$1.6bm in 1982 and the same in 1983. For 1984 it is estimated at \$1.55m, and for 1985 about \$1.5bm. This indicates that at

world's major lenders—banks, insurance companies and other institutions—already have something in excess of \$15bn at stake in the airline and serespace industry.

This figure is bound to rise as the airlines, their interest in fleet re-equipment rekindled both by the promise of e return to traffic growth and the imminence of Government-imposed noise limitation regulations that will render obsoiete many of their present aircraft, are obliged to return to jet buying.

The manufacturers figures for the first half of this year

show that it is already happen-ing, with the inflow of new orders considerably higher than in the same period of

airlines have little or no cash to spare for new equipment is not dampening their interest. Because of their own long-term confidence in world air transport growth, the major lenders are turning te all kinds of innovative financing techniques te accom-modate their potential

In many instances, especially in the U.S., this is only sound business sense. Much of their money has also already been invested in the manufacture of new types of jet airliners, so that to help to finance their procurement also assists in easuring the stability of that investment.

More significantly, however, their confidence is based on

their confidence is based on the conviction, backed by all the forecasts, that aviation is essentially a growth industry that will survive and flourish in the long-term despite the difficulties of the recent past. Although the new techniques of lending may vary in detail, they are almost all hased fundamentally in one way or another on the leasing principle. The lenders themseives acquire title to the aircraft and pay for them. They then lease them to the airlines, for various periods and in various ways, in return for annual payments by the operators.

Few airlines, indeed, now pay hard eash for their air-eraft. Sandia of Sandi Arabia has probably been the only major example and even that airline has recently resorted to heatening oil for Reging 747 to hartering oil for Boeing 747 Jumbo jets in a 10-aircraft, \$1bn deal.

Offset deals

Barter itself—the exchange of commedities of various kinds in return for aircraft— is not unknown in the airline industry but has not been commonly used for commer-cial aircraft purchases. In the form of "effset" it

is an increasingly common form of covering the procurement of military aircraftthe client country requiring some form of compensation coften in the form of joint manufacture) in return for placing the order for a specific type of alreraft. In the commercial aircraft

field it is also becoming com-mon for the manufacturers themselves to become deeply involved in raising financial for the airlines to buy their products. Many aircraft makers have established their own finance companies speci-fically to undertake this kind of work; and these in turn have established close rela-tions with banks and other in-stitutions capable of finding the cash needed for the sales.

A major jet airliner deal may thus include not only the manufacturers (of both air-craft and engines) but also banks and other lenders, goveruments and other institu-tions providing guarantees, such as the UK's own Export Credits Guarantee Depart-

Moreover, it is common to Moreover, it is common to find large consortia of banks combining in a single deal. No single bank is prepared to risk its position by lending a particular airline all the money it needs for re-equipment. By spreading the burden among a large number of different financing institutions, however, not only is the risk to each reduced but it risk to each reduced but it becomes easier to put to-gether the immense sums re-quired.

In such arrangements one bank becomes the "lead" erganisation, putting together the consortium which provides the cash. Such groups can eften include up to a dozen or more institutions all investing in the same deal. investing in the same deal. Moreover, as these groups have spread over recent years, it is not uncommon to find any one hank with investments spread throughout the world airline industry through membership of several separate consortia.

In this way the banking community has demonstrated its flexibility in meeting what in the past have been particularly heavy demands for new airliners.

The demands that seem likely to be put on the bank-ing community could well become much more severe. If the Manufacturers' forecasts are correct—and there is no reason to doubt them—the \$172bn or more that will have to be found over the next decade will require a much larger amout of cash to be put at risk in the air transport industry than ever be-fore.

The big questions are whether the banking and financial community as a whole will be prepared to accept this increase in the commitment to civil aviation and whether it will need to be even more innovative than hitherto in solving the air

interest payments.

This is where the problem has to be laid back at the airlines' own door. If they wish to acquire the new fleets they need to meet the replacement of agoing aircraft and to accom growth, they will have to become much more efficient. They will also have to strive much harder to maximise

their profits.

While many airlines have certainly undertaken severe through the recession, re-ducing labour forces, cutting out unprofitable routes, selling off unnecessary assets such as hotels, and dropping ageing and uneconomic air-craft, and as a result returning to profitability, it is clear that much more

Costs too high

There are still far too many strlines, now flying emprofitably, who could regain their financial bealth by more severe labour and asset retrenchment schemes. costs in mainy strines are too high and yields are inadequate. Some indulge in unnecessary expansion, when consolidation should be the

keynote.
Some buy unsuitable types of aircraft and do not use them correctly. Correcting these deficiencies will remain

It seems likely that in the years ahead the major lenders will take an even lenders will take an even more active interest in helpful financing arrangements than they have in the past. They would be sensible to do so, for the air transport industry's dependence upon them is bound to increase, rather than distinuish.

But what matters more fian anything else is a return to a stable, long-term expansion of world air traffic. A period of healthy growth in passenger and cargo traffic,

passenger and cargo traffic, if sustained through the remaining 1980s and beyond, will revolutionise the industry and do wonders for its financial health.

As some airlines have already demonstrated — and British Airways is a case in point all ways is a case in profitability from a period of near-disastrous losses can be achieved quickly if the correct retrenchment mess-



Airports LYNTON McLAIN

August 28 1984

dieter aircraft

artines to the year of the yea

will need see

of the second

Marie M. P.

that ret only

The state of the s

... J. 2025

7741

יינו הגון מינוסיים

U 7712.00

in the Profession .m. tine 1,5835 202

In cost

THE RETURN to growth of civil aviation last year and the introduction in Europe of several new cheap fare services in recent months, with more to come, have again underlined the strength of demand for air transport and therefore air-

In the UK alone, passenger movements at all airports are expected to more than double by 1995 compared with 1982, in the high case, and to increase by 00 per cent in the low case. By the year 2000, passenger nents are forecast to: increase by between 80 per cent and 300 per cent of the 1982

The latest air traffic forecasts for the UK, prepared by the Department of Transport in July, showed that in Continental Europe and many developing countries "recovery is expected to be weaker and hesitant by past standards."

But since the previous fore-cast report, published by the Trade Department in May 1983, the projections for the growth of UK gross domestic product have been revised upwards, the latest report said.

This reflected the strength of the cyclical recovery now occurring in the UK, which has been accompanied by a declining inflation rate and improved productivity. This should provide a basis for sustained growth of output [in the UK] over the forecast period," the report said.

Revised

There has also been an upward revision of projected growth among the Organisation for Economic Co-operation and Development countries outsida Europe.

Further growth is forecast to continue into the late 1980s and 1990s, although more slowly, so that demand for airport ser-vices, and capacity is likely to remain high for some time to

At the same time, however, UK the recent long-running A slower growth of leisure airport authorities around the public inquiry into the British traffic at UK airports after 1990 world do not have many substantial plans for brand new build the third London airport the reduced growth projected "greenfield" capacity. This is at the existing under-used air-for leisure flights from the UK, particularly so in the develope port at Stansted Essex, in rich which in turn mirrors the decimal pressure groups, in the develope of business travel."

The final arbiter has to be the Government, already enmeshed in a debate over the future ownership of British Authority already enmeshed in a debate over the future for leisure flights from the UK, Authority already enmeshed in a debate over the future was at the existing under-used air-for leisure flights from the UK, Heathrow, and the progress of civil aviation in the UK.

of growth in gross domestic of London, was a case in point. penetration of the UK leisure product and high burden of debt to the developed world have already combined to limit the funds available for capital investment in new projects.

Airports in the developing world and in oil-rich countries have often been prestige projects, where grandlose plans have been executed to provide airport capacity well in excess of the immediate demands.

Even the oil-rich nations have seen seen their revenues curtailed by sluggish demand for oil; and with existing airport capacity in these countries, especially in the Middle East, more than ample to meet fore-seeable demand, "greenfield" airport projects are unlikely in

Instead, the expenditure still taking place at airports around the world is concentrated on improvements simed at making the existing terminal buildings and other facilities more attrac-

New or upgraded terminal buildings are typical of this investment. But in small countries with modest facilities improvements can be limited to updating or replacing pas-senger and baggage handling equipment, with improvements to air traffic control and especially radar often an essential requirement.

Other ways whereby authorities can increase the effective-ness of their airports without major expenditure on green-field sites include modest spending on new terminal buildings, or even increasing the length of runways. These, enable the anthorities to meet increased passenger movements and also to provide for larger, and also in provide for larger, more efficient aircraft such as the Boeing 747, with longer ranges enabling more desti-nations, farther afield to be

served. At the same time this solution to the problem of handling the growth in traffic provides the airport authority with a potentially cost-effective way of making more efficient use of its own investment in the airport.

Another influence on the development of airports, bowever, has been the growth of environmental pressure groups. In the

The inquiry also looked at market, the report says.

counter-proposals to build a Foreign leisure trave fifth passenger terminal at however are projected Heathrow Airport, even before increase quickly after the fourth terminal at Haathrow is expected to be ready for opening later next year.

No decisions have yet been reached. The Government has not published the inquiry report, and may not do so until late this year or early next. Yet late this year or early next. Yet the conflicts between environmental interests and demand for air travel continue to at UK airports," the report

unabated. This is well illustrated by the latest Air Transport Forecast for the UK, published by the Department of Transport. The forecast annual growth rates for airline travel to and from the UK remain strong, but they are below earlier historic levels and below earlier historic levels and are set to decline over the years international airport. to 2000

airports, traffic is forecast to rise to somewhere between 80.1m (the "low" forecast) and 100.8m (the high "forecast) in late next year. The late next year. The late next year. 1990; to between 93.7m and 133.6m by 1995; and to between 105.8m and 172.8m in 2000. These figures represent an everage annual growth of between 3.3 per cent and 6.2 per cent over the 18 years from 1982 the base year for tha fore-

International traffic generally is projected to remain the domi-nant component of UK passenger movements throughout the forecast period. It is forecast to rise from 75 per cent of total traffic at UK airports in 1982 to 79 per cent of total traffic by 1995.

International leisure traffic is predicted to grow slightly faster than international business traffic in the first phase of the forecasts between 1982 and 1990 but more slowly thereafter. Forecasts of business traffic

after 1990 are uncertain because it is "impossible to assess what effect the rapid development of telecommunications may have on certain types of business travel."

Foreign leisure travellers, increase quickly after 1990, because real incomes abroad are likely to maintain strong growth and also because the UK

says.

These patterns of continued growth, whatever the final out-come, have already led to a conflict between environmental interests and airport operators and airlines in the form of the Government-imposed limit on aircraft movements at Heath-

The DoT gives both "low" forecasts and "high" forecasts. From the base year of 1982, when 58.8m passenger movements were recorded at UK the noise musance," the Department traffic is forecast to

Tha limit is set to come into force when Terminal 4 opens late next year. The limit is likely to be exceeded before then, however, with a level 276,000 ATMs at Heathrow between November last year and

October this year.

Demand for landing and takeoff "slots" is expected to continua to increase until the early 1990s, when, on present assumptions about patterns of traffic and aircraft size, it could exceed the limit by 25,000 movements

a year.
The Department bas con-sidered three main approaches to the problem of curbing this demand at Heathrow. These are: price mechanisms; the exclusion or restriction of certain categories of traffic or services; and the division of the limit into quotas for international and domestic services. At the same time the Department wants the "preservation of overall environmental standards." All the elements of an all-to-familiar conflict between continued public demand for air transport and the need to protect the environment from an unrestricted increase in aircraft movements are present in the Heathrow debate.



executive aircraft is the U.S. Beecheraft Starship One, now under development. An 85 per cent scale model is already flying in the U.S. to prove the validity of the design

Aircraft		S.	nstant 19 Non-	U.S.	Wor	ld
type	Units	S bu	Units		Units	5bn
Feeder-commuter		•				
fixed wing	1,100	5.5	1,780	8.5	2,800	14.0
Business-utility						
fixed wing	10,000	33.0	4,700	12.5	14,700	45.5
Helicopters	5,000	7.0	6,000	8.5	11,000	15.5
Total market	16,100	45.0	12,400	29.5	28,500	75.0
T	URBINE	ENGIN	ie mar	KET		
Aircraft	U	.s.	Non	U.S.	Wor	
Aircraft type		.s.		U.S.	Wor Units	id Şbr
Aircraft type Feeder-commuter fixed wing	U	.s.	Non	U.S.		\$bz
Aircraft type Feeder-commuter fixed wing Business-utility	Units 2,500	.S. \$ bn 1.5	Non- Units 4,700	U.S. \$ bn 2.7	Units 7,200	\$bz
Aircraft type Feeder-commuter fixed wing	Units	.S. \$ bn	Non- Units	U.S. Sbn	Units	\$bz
Aircraft type Feeder-commuter fixed wing Business-utility fixed wing	Units 2,500 19,000	.S. \$ bn 1.5 10.4	Non- Units 4,700 8,600	U.S. \$ bn 2.7 4.0	Units 7,200 27,600	5b: 4.3

Volume of deliveries cut

Business Aviation

LYNTON McLAIN

THE RECESSION world-wide over the past few years has taken e particularly heavy toll of the business and general aviation market-small, light aircraft with seating capacities from two up to about eight to 10 passengers.

This has been reflected in considerably lower order books, which, in turn, has substantially cut the volume of deliveries by the major manufacturers so far

As with other sectors of aerospece, bowever, the signs are of a revival, although it may be

Despite the mixed fortunes so far this year, the industry is confident that the business a viation sector in particular this year. spece, bowever, the signs are of a revival, although it may be slower to develop than in some

other parts of tha industry. In the U.S., traditionally the main market for general aviation and business aircraft, the first half of this year showed that demand is beginning to pick np. The order book billings for the U.S. manufacturers rose by 15.3 per cent to \$740.9m in the six months to tha end of June, compared with the corresponding period last year, according to the General Aviation Manufacturers Association (GAMA) of the U.S. (GAMA), of the U.S.

Over the same time, however, total deliveries by the makers feil a fifth to 1,087 aircraft compared with the first half of 1983 reflecting the earlier lack of now appears to be coming true, belicopters between 1985 and amoun to 1995.

were the worst affected, down almost 50 per cent to 158 air-craft compared with the period last year, in the face of a strong dollar. U.S. general aviation export order books stood at \$112.1m et the end of June, a chases fall of almost 40 per cent on craft. the period last year.

Deliveries of business jets, however, rose by 23.3 per cent to 74 in the first half this year compared with the half year period in 1983. This was in contrast with the declina of over a quarter in the number of turboprops delivered, down to 105 aircraft, and the decline of 17.5 per cent to 184 delivered in the piston engine category in the six months to the end of June compared with the same months

remains a growth area, espe-cially where "on demand" air

transport is required. "Dispersion of commercial and industrial plants and facili-ties; decentralisation of the management function and convenience to resource raw materials add to the rationale of need. Pentup demand for business aircraft will soon burst into active demand," forecasts the National Business Aircraft Association (NBAA) of tha U.S.

Mr John H. Winant, president of NBAA, forecast earlier this year that "a bealthy booking of orders for new aircraft" would begin in the latter part of this year, and this prediction

is dependent on a "handful of with a total value of \$7bn. A further 6,000 helicopters, valued at \$8.5bn, are forecast to be sold in non-U.S. markets. is the money available for "discretionary capital goods pur-chases," such as business air-

"When after-lax profit levels are bigh, the conditions for purchase of a business aircraft deliveries. The expansion of are fertile," be says.

The U.S. has a demand for up to 10,000 business aircraft over the decade to 1994. This level is over twice the number of such aircraft expected to be sold in the rest of the free-world put together, according to Pratt and Whitney, the U.S. menufacturer of aircraft engines, in a survey of likely demand for engines to the mid-1990s.

Helicopters

The Pratt and Whitney survey showed that up to 14,700 new business-utility fixed-wing aircraft could ba required in the U.S. and the rest of the non-Soviet world between 1985 and 1994, with a total value of \$45.5bn at con-stant (forecast) 1985 dollar

Up to 10,000 of these businessntility aircraft, valued at \$33bn, are expected to be sold in the U.S., with the remaining 4,700 aircraft valued at \$12,5bn sold elsewbere.

Despite these optimistic looger-term forecasts, the shortterm situation seems likely to show a modest growth in prodeliveries. The expansion of the business aviation sector will be closely linked to the growth of the U.S. economy, and a sustained growth in the latter will bave "a significant, positive impact on the demand for general eviation," in Mr Winant's view. For the longer term, the net addition to the U.S. business aviation fleet is expected to average about 7,300 new aircraft of all sizes and

and 1995. The highest growth rate is forecast to be in the "turbine rotorcraft" fleet (the helicopters), where there would be "significant growth," of 7 per cent per annum.

types each year between 1984

Smaller growth rates are expected in the turbine-powered aircraft sector, with a forecast annual growth of 5.8 per cent. This growth rate, if achieved, would increase the size of the turbine-powered flect from 9,000 aircraft last year to

18,000 expected in 1995 The sector with the lowest growth rata is forecast to be for active single and multi-engine piston aircraft, where the In addition, the U.S. market size of the fleet is expected to is expected to absorb 5,000 increase by 2.4 per cent per



Leading companies adapt to fall in civil orders

United States TERRY DODSWORTH

THE U.S. aerospece industry is one of the country's three premier export sectors, sharing with computers and office equipment the distinction of holding 30 per cent or more of the world market in its field.

Unfil two years ago it also enjoyed e long record of solid growth, with shipments rising from \$21bn in 1979 to \$64.8bn in 1981. But in 1982 deliveries feli 2 per cent to \$63.4ba. The recession, bowever, did

not hit the aerospace sector as hard as many other of the country's basic industries. For a start, the growth in military expenditure partly balanced out the slump elsewhere, allowing shipmeots last year to lift off once again and jump 15.4 per cent to \$73gbn.

At the same time, in a manner typical of U.S. compenies, the big aircraft manufacturers bave moved swiftly to adapt their threw its resources into that strategies to the new conditions.
Results thus suffered for e time,
but the slump in orders for civil
aircraft bas not inflicted permanent long-term damage and the profits recovery arrived

with a bene last year.
One reletively straightforward and rapidly instituted line of defence has been a big costcutting effort. Jobs have been trimmed beck in most of the big companies, often quite radically, and they bave also teken the leed in changing the contractual rules in a way that

has put the trade union clock back many yeers.

Both Boeing and McDonnell Douglas bave taken long strides in the past 12 months to estab-lish the principle that newlyhired workers do not take jobs et the same rate as established

employees.

The unions have fought bard against conceding this point, but they have mainly lost as the companies managed to re-introduce much more progressive, pyramid-type wage systems designed to reward skill and

long service.

Just as importantly for the companies, these systems will also cut costs substantially over the longer term, since new employees will join the work-force at much lower wage rates than in the past.

A second phase of the cost reductions was in cutting non- year

essential expenditure, either by essential expenditure, entire by trimming normal capital spend-ing or soft-pedalling research and development. Clearly, these ere dangerous strategies long-term but effective over the sbort run; and in some cases they bave followed e detailed reappraisal of where the com-

pany is going.
At Lockheed, for example, a key decision in 1981 was to stop work on the L-1011 TriStsr project (taking a heavy write-off into the bargain) and concentrate on military work.

McDonnell Douglas decided lete last year to abandon research and development work on commercial aircraft because of its bleak order prospects.

Talks with airlines

McDonnell Douglas stopped short of saying that it would abandon airliners altogether. But it left a distinct impression that it might drop out some time in the future, and in recent months it has sought to

it threw its resources into tha MD-80 jetliner project, which is designed to update the old DC-9. It has since been rewarded with significant sales, including a massive \$1.3bn order for 67 aircraft from American Airlines, one of the largest in U.S. aviation history. In recent weeks, McDonnell Douglas has also begun talking with the airlines agein on a DC-10 long-range jet, tha

Linked to these decisions to limit the range of commercial models, there has been an in-creasing emphasis on military projects. This may to some ex-tent bave been forced upon companies by the slump in com-mercial airlines, but it has been exactly right during a period of steadily increasing defence

expenditure.

As Mr Alan Benasuli, an analyst at brokers Drexel Burnham Lambert, puts it, President Reagan's big boost in the military budget is only toppiog out a cycle of defence spending which began under President Carter after the cutbacks under Presidents Nixon aod Ford.

panies score the big increases luctant customers.
in net earnings recorded last Indeed, some U.S. interna-



The aerospace giants are being joined by rapidly developing newcomers around the

McDonnell Douglas has added another element to this tactic of moving away from commer-cial airliners by diversifying into other industrial sectors. This year the company has bought Hugbes Helicopter and two concerns in the data-processing sector — Tymshare, which cost \$308m, and Computer Sharing Services (\$69m).

The group already has its own large data-processing business, to which these two newcomers will be attached

Meanwhile, McDonnell's decision to reduce its current air-liner development programme underlines the economic fra-gility of commercial aviation. The U.S. airlines have this year mostly recovered from their cost-cutting war to take ad-vantage of the surge in business fixed costs, with a return to

profitability.
Some of the larger carriers have also begun to upgrade their fleets—the American Airlines order at McDonnell Douglas, for instance—but there has Even so, the burgeoning not yet been an enormous rush defence budget has been a big to buy and the U.S. international factor in belping the major com-

are still in deep financial trouble, as its \$50m secondquarter loss shows.

One problem they bave faced in the home market is that many of the new airlines which have appeared to challenge the estab-lished carriers use second-hand aircraft. There are plenty of them around, and in an era of cheap fuel the airlines lack the incentives to search for more economical aircraft.

Sales drop

The sluggishness of the civil airliner market is illustrated in Boeing'a first-half figures this year. The world's largest commercial eerospace company saw net profits for the period slip 1.1 per cent to \$180m (although they have been later restated and boosted by changes in tax rulings). Boeing sales fell 21 per cent to \$4.8bn.

The fall was all on the civil aircraft side. Military sales were up, with those to the U.S. Government totalling \$1.95bn, an increase of \$426m on a year earlier. But these gains were offset by lower jet transport

The problems in civil sviation are underlined by the contrast with Lockheed, which hit a difficult financial period a few years ago, and decided to concentrate almost exclusively on military and space work military and space work,

Two months ago Lockheed paid its first quarterly dividend since 1969, while in the first half of this year it lifted earnings by 22 per cent to \$146m—only \$34m less than the much larger Boeing.

Most of the other defence-based companies are also enjoy-

based companies are also enjoying the benefit of the increase in Government spending, although the field is competitive and not without its problems.

Grumman, for example, has shown only slow growth over the past 18 months. In the second quarter of this year it actually experienced a decline in earnings, which fell 4 per cent to \$25m. The company attributed this sluggish performance to beavy research and development expenditure

and development expenditure
on its X-29 advanced fighter,
the A-6 Navy bomber, and
various electronic programmes.
Meanwhile, Grumman has
received a bread-and-butter
Navy contract to improve the existing A-6 and F-14 aircraft for about \$1bn.

Northrop, however, which is

Jumbos to be stretched further

The Boeing 747 Jumbo jet, tha world's biggest commercial passenger airliner, continues in production at the company's Everett factory, near Seattle. The latest version is the Series 300 (seen in the foreground) in the colours of Singapore Airlines, which calls it the "Big Top"). Boeing more conventionally describes it as the "Stretched Upper Deck" version of the 747 because the upper cabin has been extended further back along the top of the

fuselage enabling the airliner to seat between 450 and 500 passengers according to interior Layout. Boeing's own long-term plans include layout. Beeing's own long-term plans incinde the possibility of stretching the upper deck still further and perhaps also fating new wings and engines of greater power to allow an even bigger passenger load, perhaps up to as many as 600-plus in a high-density seating arrangement. The Japan Air Lines' Jumbo in the background is a Series 200, without the stretched upper deck.

				years)						
•	I	Eistoric	:al	-Fer	ecast-	Perc	ent ave	1286 T	nnual g	LOMEN
	1979	1982	1983	1984	1985 .	79-82	82-83	83-84	84-85	82-95
Air carrier, domestic:								·		
Rev. passenger emplane-										
ments (m)	288.4	272.8	290. 3	312.7	330.9		6.4			4.6
Rev. passenger miles (bn)	203.7	207.8	223.5	240.8	255.1	0.7	7.6	7.7	5.9	5.0
Commuter carriers:										
Rev. passenger emplane-									1.22	
ments (m)	12.5	17.1		21.5		11.6	14.0		9.0	7.4
Rev. passenger miles (bn)	1.5	2,3	2.7	3.1	3.4	15.8	16.2	12.8	10.6	9.3
Fleet size:									43.25	
Air carrier	2.237	2,483	2,556	2,657	2,638	3.6	2.9		(0.9)	2.2
Commuter	1.413	1.494	1.500	1.606	1.682	1.9	0.4	7.1	4.7	4.5
General aviation ('909)	198.8	213.2	209.8	207.0	211.0	· 2.4	(L6)	(L.3)	1.9	2.6
Hours flown (m);										
Air carrier	6.4	6.3	6.6	6.8	6.8	(0.5)	5.1	2.4	0.7	2.1
General aviation	42.3	37.8	36.6	37.6	39.1	(3.4)	(3.2)	2.7	4.0	4.0
1070 OF CAR EAA OATA				-				()=	Delitabed	growth
FAA	Aviation	Policy	Office Avi	ation Fort	cests Fis	cal 7984-9	S	• •		-

U.S. COMPANIES' EARNINGS

Company	Sales 12 mths. '83 \$m	% chng, from 1982	. 1983 net earnings \$m	% chng. from 1982	2nd qtr. sales \$m	% chng. from 1983	6 mths. sales \$m	% chag. from 1983	2nd qtr. earnings \$m			from 1983
United Technologies	14,670	+ 8	509.2	- 4.6	4,178	+12	8,069	+11	169	+20.7	305.2	+21
Boeing	11,129	+23.18	355	+21.58	2,740	-13	4,830	,-21.3	102	+10.9	180	- 1.1
McDonnell Douglas	8,111	+10.6	274.9	+28.0	2,546	+31.6	4,570	+14.3	77.7	+26.3	. 145.2	+19.6
General Dynamics	7,146.3	+16.1	286.6	+115.8	1,902.5	+ 7.1	3,762.8	+ 4.5	. 96	+32	173.5	+ 34
Lockheed	6.490.3	+15.6	262.8	+26.7	1,933.7	+21.3	3,716.4	+16.9	78.7	+15.7	146.4	+22.4
Martin Marietta	3,899.3	+10.6	141.3	+54	1,176	+23.3	2,244	+27.8	74.1	+20	99	. +39.8
Northrop	3,260.6	+31.8	100.7 -	1764.8	838.9	+ 4.3	1,653.8	+ 7.8	38.3	+39.3	69.3	+99.1
Grumman	2,254.8	+ 9.6	110.8	+240	609.9	+11.3	1,199.9	+ 5.8	25.2	- 4	50.5	+ 3.3
										Roses	arch: Rivka	Nachoma.

Smillers bert Ha

Mental Cartifier

(Carrie | Carrie | 1000

Feder

CON! .NU

Waster Company of the 2, 4

36-7-1

Salah Comins

Part of the same of The following

Care and a state of the second state of the se

Section 1

San Array

Em William THE WORLD'S TRAINING

2. 14.2 eret in the long of

Igor Sikorsky flew the world's first practical single main rotor

The First.

helicopter on September 14, 1939. Today, Sikorsky, the company, is the largest helicopter manufac



The Finest.

Sikorsky is now producing the world's finest, most advanced fleet of military and commercial helicopters.

☐ The Sikorsky H-60 series is the new standard of the U.S. Military. As Army BLACK HAWK, Navy SEAHAWK, and Air Force NIGHT HAWK, this next-generation helicopter will serve both present and future multi-role requirements.

☐ Sikorsky's SUPERSTALLION H-53E is the Western World's largest heavy-lift helicopter, now being used by the U.S. Marines and Navy. The MH-53E will be used by the Navy as the nextgeneration airborne minesweeper.

☐ The Sikorsky S-76 MARK II is the finest commercial helicopter in its class for both oil and corporate transportation.

☐ The H-76 military helicopter is a new multi-role aircraft destined for worldwide service.



The Future.

Backed by the strengths of its parent, United Technologies Corporation, Sikorsky is leading the rotary-wing industry into the future. Sikorsky's Advancing Blade Concept (ABC) is the fastest in the world. And its Rotor System Research Aircraft (RSRA) is already testing 21st Century technology.







Sikorsky. The Leader

Strong federal funding

Canada MIACHAEL .DONNE

research and development skills

is showing extremely buoyant results this year. In the first half, earnings nearly doubled to \$69m as it surged ahead with a big sales increase helped by improvements in

The company's big gamble is

on its new F-20 Tigershark jet

fighter. Northrop is developing

it out of its own resources,

although it bas not attracted a

single order as yet. Work on the project cost \$34.5m in the quarter, almost the same as in the same quarter a year ago.

Prudently, Northrop is writing off all this development

expenditure against profits; but it clearly needs to maintain

strongish earnings to do so and

its results bave shown the strain in previous years. In 1982, for instance, it made only \$5.4m.

Overall, however, the second-quarter figures from the U.S.

industry give a broadly positive view for at least the next 12 months. Even if President Reagan were to lose the elec-

tion, few observers believe that there would be a rapid enough cuthack in military spending to hit the companies for a year or

so. On the civil aviation side

orders are expected to pick up because of ageing airliners in

several of the big fleets.

operating margins.

FOLLOWING the major financial restructuring by the Government earlier this year of the two major Canadian air-frame manufacturers, Canadair and the de Havilland Aircraft Company of Canada, it is now hoped that they will be able to climb out of the difficulties they faced in the early 1980s.

also Pratt and Whitney Aircraft of Canada, an eero-engine builder which is a major sub-sidiary of the U.S.-based United As a result of Federal Government funding totalling soma C\$1bn, plus similar amounts of cumulative debt Technologies Corporation, and well over 100 other companies written off, the two companies have been given almost a new The Federal Government

believes that both, slimmed down to meet the current realities of the world marketplace. will be stabilised this year and return to profitability in 1985 or soon thereafter, especially if the recession is genuinely fad-ing, leading to a revival of world airliner demand. As a result of this traumatic

in sbort-take-off-and-landing air-craft (STOL) and has had con-siderable success with such small aircraft as tha 19-sest e, the longer-term forecasts for the Canadian aerospace industry have been The industry's turn-Twin Otter, of which close on 1,000 bava now been sold. revised. The inquistry surriver of about CS3bn last year is expected to rise to around C\$7bn by about 1987, while employment, which fell from 41,000 in 1982 to about 38,000 last year, is set to rise again, reeching about 50,000 in 1987. Much of the Canadian industry's recovery, of course, will depend upon the scope of the airliners and executiva trans-

Current emphasis is on tha Dash 7 four-engined turbo-prop 50-seat quiet STOL (airliner, which is already in wida service, especially with the smaller commuter-type and regional air-

Demand for this highly efficient airliner continues, and it recovery from the recession is establishing a significant overseas, where the bulk of reputation as a "good neighlong-term demand for the bour" aircraft in small communication airframe manufacture in the short to airfelds tend turers' specialised types of small to be closer to city centres than elsewhere.

More than 100

Overall, the Canadian indus-

try includes not only the two major airframe builders but

activa across a wide spectrum of aerospace affairs, including,

for example, Spar Aerospace and many companies making

components of all kinds from

avionics to hydraulics, commu-

nications systems, simulators, fuel systems, and so on. Of the major manufacturers,

de Havilland, or DHC as it is known, of Downsview, Ontario, has specialised in recent years

concerns

In the UK the Dash 7 in the In particular, the commuter fleet of Brymon Airways is in-

and regional airline market is of tended to be a major user of said that the task now facing significant interest, especially to the projected Stolport now the company is to re-establish de Havilland Aircraft; but comdon's Docklands, close to the confidence, and re-establish its City, and the planned hub of a network of commuter air serand superior customer service petition is flerce in the market for small airliners, with the Brazilian Embraer Brasilia, the Swedish-U.S. Saab-Fairchild 340, the Franco-Italian ATR-42 and the UK Sborts 330 and 360, all fighting for available orders. vices, both domestic and inter- and support.

Following the success of the Dash 7, DHC has developed the smaller companion Dash 8, a twin-engined 36 to 33-seater twin-engined 3th to sus-seater quiet short-range transport, which is now in quantity production. To date, five development and certification aircraft are engaged in the extensive flight test programme, with over 1,200 bours of flying achieved.

The teries to customers are Deliveries to customers are expected to start later this year. The Eash E will be demonstrated at the forthcoming Farnborough International Air considerabla interest.

Earlier this year, the other major airframe builder, Canadair, following substantial losses in 1982 and 1983, also underwent a major financial restructuring with the aid of the Canadian Government. As a result, the "New Canadian" set np under the restructuring plan is relieved of the Old Canadiar's debt burden, and now has a positive net worth.

Canadair reborn

According to the company's last annual report, it is expected that the New Canadair, relieves of the interest costs which formerly burdened operations, will be profitable by 1985, if not before, and any short-term cash requirements for existing programmes and ectivities will be met through conventional banking arrangements without the need for further Government guerantoes.

company said recently that it expected a pre-production go ahead on tha programme by the end of this year.

Canadair is also working on the C-227, a surveillance/ target-acquisition system with the individual control of the production go ahead on the programme by the expected a pre-production go ahead on tha programme by the expected a pre-production go ahead on the programme by the expected a pre-production go ahead on the programme by the expected a pre-production go ahead on the programme by the expected a pre-production go ahead on the programme by the condition of this year.

Canadair is also working on the C-227, a surveillance/ target-acquisition system with the condition of the programme by the expected a pre-production go ahead on the programme by the condition of this year.

Canadair is also working on the C-227, a surveillance/ target-acquisition system with the condition of the programme and the condition of the programme and the condition of the conditi

Canadair's major aircraft pro-

grammes currently include production of the twin-engined Challenger let executive transport, and the CL-215 twin-engined amphibian, intended engined amphician, intended primarily for fire-fighting (a "water-bomber") but adaptable to a wide range of other duties. The company is also engaged The company is also engaged on a wide range of sub-contracts for U.S. and Canadian military aircraft and parts for the Boeing 747 and 767 sirliners. The military aircraft involved in this programme include the Lockheed P-3C Orion, the McDonnell Douglas F/A-18 Hornet and the Lockheed C-5B trans-

Besides its work on manned aircraft, Canadair is also developing or producing various ummanned remotely - plloted vehicles for military roles such as surveillance and target acquisition. One is the CL-289, based on the existing CL-89 sys-tem, etill in production. This is an international pro-

amme, in which Canadair is linked with Dornier of West Germany, to develop a remotely controlled recoverable airborne system for accurate battlefield surveillance. Extensive trials have been conducted, and the company said recently that it company said recently that It

seeking funds for full-scale en-Mr Gilbert S. Bennett, presi- gineering work, but meanwhile

dent and chief executive, has development would continue CONTINUED ON PAGE 13

Still keen to learn from West

Soviet Union MICHAEL DONNE

1 August 28 1994

d furth

Berngia is in

the upon the state of the state

laster to allow the de fiape up fe an of the state of the state of . T I imes Jumbe t;

CASTS

in the properties

N. N. N. S. S. S. E.

16: 123 PK

the sents of to the same of the

100

ng

THE AEROSPACE industry of the Soviet Union rivals that of the U.S. in size and variety of

Precise statistics for the out-

Precise statistics for the output of the Soviet aerospace factories, or details of the numbers of factories and people employed, are not publicly revealed; but that it is a very large industry is shown by the fact that it meets not only the Soviet Union'e own total needs for civil and military alteract. for civil and military aircraft and missiles of all kinds, and spacecraft, but also supplies much of the civil and military needs of the Warsaw Pact nations.

Other than the Warsaw Pact, however, and a few other countries such as Cuba, some countries in the Middle East and in South East Asia, Soviet aerospace exports are limited and generally confined to military aircraft and equipment.
Efforts some time ago to build up an export business in commercial sirliners in Western the argort business in significant progress in areas commercial airliners in Western such as missile technology and countries achieved little success, and today that effort in general had previously been appears to be conducted in a in the lead.

Nate's 795; and some 585 recennalisance alreaft against Nato's 225. The Wersaw Pact's total air force in Europe amounted to 7,430 aircraft against Nato's 2,990.

Soviet missions to the major considers it to be to its advantage with caution, for the Nate international air shows, such as Farnborough and Paris, at not besitate to take advantage keep theusands of combat airwhich some of the more impression of the freedom of Western craft in their ewn terrileries;

space technology over recent years, tha missions at the airshows are also intended to learn as much as possible about the progress of Western tech-

Russian reticence

Western observers at recent Paris and Farnborough shews have noted the determination with which Soviet missiens have collected information — freely available — on the Western aerospace industries' own progress while being reticent about the Soviet Union's ewn achieve-

Soviet developments are societies in order to acquire but the comparisons de indicate to be simed more at impressing ment and know-how. Western technology and equip the existence of an immensely powerful Soviet aerospace the West with the results of One reason for this decline industry capable of a wide specsoriet technology than with win-

ning orders fer the products ship is that the resources involved.

At the same time, however, despite the undoubtedly rapid strides made by Soviet geroaerospace is concerned, are much greater than in the West, where it has often not kept pace with inflation and the rising costs of emering new tech-nological fields. Some idea of the size and

complexity of the Soviet aero-space industry, and of its tech-nological capacity, was given earlier this year in the same Nato force comparison men-tioned above. This showed that in 1983 the Warsew Pact countries, primarily supplied by the Seviet aerospace industry, had up to 400 supersonic bombers of the Backfire, Badger and

down to the small As-26 throne2,990.

The figures must be viewed spraying and similar duties, with caution, for the Nate nations, especially the U.S., alse keep theusands of combat airthe famous line of MiG fighters, range jet transport alreraft.

The figures must be viewed spraying and similar duties, test centre late in 1981.

It was announced last year carriers.

The fact that the Soviet aerospace technology as a whole.

Although the Soviet Union that the famous line of MiG fighters, range jet transport alreraft.

'Design Bureaux'

The structure of the Soviet terospace industry is based or a series of "Design Bureaux," headed originally, and in some cases still headed, by some of the most famous names in the structure of aviation. These include Antonov Bureau, primarily involved in tha design, development and manufacture of a wide variety of transport aircraft, for civil and military purposes, with a very large four-jet aircraft, the An-400 now under development. Burean is responsible for

Hyushin Bureau is primarily a transport aircraft huider, the IL-62M long-range feur-jet transport being one of its most frequently seen air-

the MiG-31 Foxhound A (Its Nato code-name) supersonic combat aircraft. Mil Bureau, originally founded by Mikhail L. Mil, is another helicopter organisation. It builds larger aircraft than the Kamov Bureau, such as the Mil Mi-26 vehicle-carrying, eight-hladed-Rotor helicopter.

Myasischev Bureau is responsible for strategic long-range bombers and other aircraft, including the Bison maritime reconnaissance aircraft often seen around the Atlantic shores ef Western Europe, where it is intercepted and escorted eway by Nato fighters.

Sukhoi Bureau is another majer fighter producer, whose latest developmen! appears to be the Sukhol Sn-27 supersonic be comparable to the U.S. McDonnell Douglas F-15 Eagle.

the Soviet Union's ewn acmerates.

This technological inquisition appears te have paid dividands.
A recent cemparison of Soviet and Nato forces prepared by Nato itself indicated that the Soviet Union was now making significant progress in areas a such as missile technology and as such as missile technology and improved in spacecraft, where the West in spacecraft against Nato's in spacecraft, where the West in spacecraft against Nato's in spacecraft, where the West in spacecraft against Nato's in spacecraft, where the West in spacecraft against Nato's in spacecraft, where the West in spacecraft against Nato's in spacecraft, where the West in spacecraft against Nato's in spacecraft, where the West in spacecraft against Nato's in spacecraft, where the West in spacecraft against Nato's in spacecraft, where the West in spacecraft against Nato's in spacecraft, where the West in spacecraft against Nato's in spacecraft, where the West in spacecraft against Nato's in spacecraft, where the West in spacecraft against Nato's in spacecraft, where the West in spacecraft against Nato's in spacecraft, where the West in spacecraft against Nato's in spacecraft, where the West in spacecraft against Nato's intercepter aircraft against Nato's



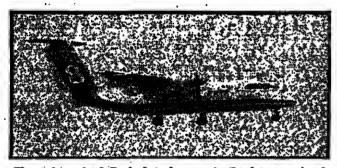
venicles being loaded this a Soviet an area occay-in beincapter, and mi airzo is the heaviest helicopter yet flown anywhere in the world, and has set a number of world records for lifting heavy payloads to great heights—for example, on February 2 1982, it lifted a 19,000 kg payload to 20,997 ft. Powered by two Lotarev D-136 turbo-shaft engines, the Mi-26 is also the world's first helicopter to have an eight-bladed main rotor

designated Tu-204, to replace siva Soviet airline which car- lent of the U.S. Space Shuttle the egeing Tu-154 three-engined ries both throughout the USSR airliner of which several hun- and internationally a total ef dred have been built. The well over 100m passengers a Tu-154 is a familiar sight at western airports.

port system, it is knewn that It has ideas for such a develop-ment and that experimental

Tu-154 is a familiar sight at Western airports.

Finally there is Yakelev Bureau, which specialises in smaller transport aircraft such as the Yak-42 three-engined medium-ranga airliner. It also builds comhat aircraft, such as the Yak-36MP Forger vertical take-off fighter for naval duties on board aircraft responsible to the Yak-36MP forger vertical take-off fighter for naval duties on board aircraft responsible to the Yak-36MP forger vertical take-off fighter for naval duties on board aircraft responsible to the Yak-36MP forger vertical take-off fighter for naval duties on board aircraft responsible to the Yak-36MP forger vertical take-off fighter for naval duties on board aircraft responsible technology has also expanded swiftly in recent that by 1990 such a venture emerges, and also expanded swiftly in recent that by 1990 such a venture emerges, and the take-off fighter for naval duties on board aircraft souch as the Yak-36MP forger vertical space ventures, both manned that by 1990 such a venture emerges, and the yak-36MP forger vertical space ventures, both manned that by 1990 such a venture emerges, and the yak-36MP forger vertical space ventures, both manned that by 1990 such a venture emerges also expanded swiftly in recent that by 1990 such a venture emerges also expanded swiftly in recent that by 1990 such a venture emerges also expanded swiftly in recent that by 1990 such a venture emerges also expanded swiftly in recent that by 1990 such a venture emerges also expanded swiftly in recent that by 1990 such a venture emerges also expanded swiftly in recent that by 1990 such a venture emerges also expan fer deployment in the early



The twin-engined Dash 8 turbe-prop is the latest regional and commuter airliner to emerge from de Havilland Aircraft Canada, long famed for its line of quiet short-take-off-and-landing passenger aircraft.

Federal funding in Canada

CONTINUED FROM PREVIOUS PAGE

Pratt and Whitney Canada is now the world's leading manu-facturer of small gas turbina engines for business and com-

Canada. New engines for business and commuter aircraft in 1983 accounted for about 45 per cent accounted for about 45 per cent of PWC's sales, lower than normal because of the depressed state of the industry through the recession. Tetal after-sales support represents 40 per cent of PWC's business, growing in importance because of the increasing in-service engine population.

The remaining 15 per cent of sales relate to industrial gas forker F-50 and the British Aerospace Advanced Turbo-prop other equipment PWC's main competitors are Garrett, General Electric, and Allison, all of the engines for helicopters is U.S., and Bolls-Royce of the Capected to total about C\$50n over the next five years, growing anymaliv at about 26 per cent.

The recession dramatically cut industry demand for small airliners in 1982 and continued in 1983. Estimated world-wide deliveries of turbo-prop and jet aircraft by U.S. manufacturers for civil or para-military purposes fell from 1,782 in 1981 to 1,065 in 1982, and further to 730 in 1983. As a result, PWC participates in segment with a turboposes fell from 1,782 in 1981 to 1,065 in 1982, and further to 730 in 1983. As a result, PWC participates in segment with a turboposes size of the PT-6 Sikorsky aircraft. A new series of engines, the PW-30 development, while is also working on turbo-prop/turbo-sh the PW-3005, as power-unit for prospective for the participates in segment with a turboposes size of the PW-30 felloptes in 1983. Foremost was an agreement with the Canadian Federal Government to provide C#330m in repayable support towards.

Government to provide C\$250m in repayable support towards PWC's five-year C\$885m research and development effort. The Canadian Government supported R and D programme will include advanced versions of existing engines, and a new engine for Bell'e new Canadian helicopter and other applications.

Which have a high fuel consumption.

The PW-3005 also has potential for civil ground based applications in the 1990s.

In turbo-fans (jets) the market is expected to grow et en averaga annual rate of 18 per cent, and total about C\$5bn.

With its JT-15D turbo-fan in the 2,000-3,250 lb class, PWC

PWC won 11 of the 15 new engine competitions it entered in 1983, its engines being selected for the new Beechcraft, tha Cessna Caravan I and II, a Cessna military trainer, the new Fokker F-50 airliner, the Mitsuhishi Dismond executive aircraft, and the Learjet/Rinaldo Piggglo GP-180 joint venture.

PWC says that during the next five years, with an average annual growth rate of about 20 per cent, demand fer small gas turbine engines for small airliners, executive aircraft and

the current rate. Marketing re-views had confirmed that there tary demand for new aircraft, was a "very large potential a growing civil helicopter market," which the company intended to attack. aeas markets, especially in the Third Werld, and greater demand for business aircraft.

Turbo-prop engine sales are expected to grow at an anna also used in helicopters and industrial applications, with manufacturing centred in market with its PT-6 and PW-100 Series turbo-prop

> The PT-6 powers such aircraft as the Shorts 330 and 360, de Havilland Canada Twin Otter and Dash 7 airliners, while the new PW-100 Series in various models will be used in a wida range of aircraft.

These will include such air-liners as the DHC Dash 8, the Brazilian Embraer Brasilia, the Aerospatiale/Aeritalia ATR-42,

annually at about 26 per cent.
PWC participates in this market
segment with a turbo-shaft version of the PT-6 in Bell and

A new series of turbo-shaft engines, the PW-2000, is under development, while the company is also working on an advanced turbo-prop/turbo-shaft engine, the PW-3005, as a potential power-unit for prospective military helicopters and for re-engining existing military helicopters and patrol aircraft which have a high fuel con-

has a wide market.

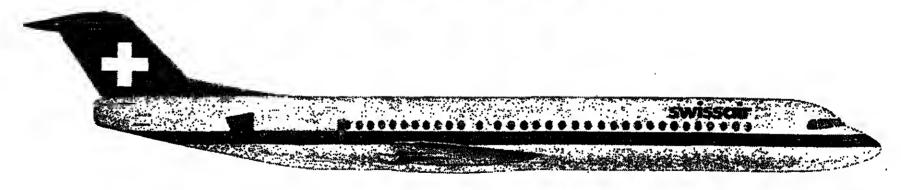
civil engine cetegeries, establish a significant presence as a supplier of U.S. military engines, and to penetrate the turbine-powered helicopter market.

The Canadian Federal alriners, executive aircraft and military trainers should rise to more than C913bn. But this growth begins from e low 1983 base, and in part will result the next decade, including furfrom the rapid growth of regional airlines in the U.S. resulting from the air transport deregulation there.

Other factors behind the Government's support for R and

Another first for Swissair

is a big first for the new



The right choice of aircraft keeps a leading airline a leader.

We're proud to announce that the new Fokker 100 will be flying the Swissair colors, enhancing the airline's reputation for reliability, punctuality, and service.

The Fokker 100 will complement the Swissair fleet of larger aircraft, bringing the high standards of intercontinental travel to the European network.

The Fokker 100 is designed to provide outstanding operational economy by incorporating advanced

aerodynamics, new technology engines, and modern avionics with CAT 3A capability for landing in adverse weather conditions. It will meet all known future restrictions for noise and pollution levels. And, with its low trip mile cost, the short-to-medium haul Fokker 100 is the ideal aircraft to serve Swissair for years to come.

In a market environment where the only constant is change, the Fokker 100 is Swissair's choice to meet the challenges it faces.



Fokker Amsterdam Holland

VISIT FOKKER AT FARNBOROUGH-CHALET B41/42!

Civil and military ventures ensure healthy workload

The UK

MICHAEL DONNE

THE PAST YEAR has been a good one for the UK aerospace initially intended as a con-industry, with a number of tender for the power-plant con-major new ventures launched in tract for the big EH-101 Angloboth civil and military aircraft Italian civil and military heli-and in guided weapons. For the copter, now under development

order book of British Aerospace, the aircraft, missiles and space group, stood at about £5.2bn, against £4.9bn at the end of 1983. BAe's sales in the feet wersion being borne on defence votes.

On a private venture basis, British Aerospace, in addition to financing its share of the 1983. BAe's sales in the first half of this year emounted to about £1.08bn, against £1.04bn in the corresponding period of 1983. BAe's pre-tax profits in 1983. BAe's pre-tax profits in the first half were estimated at £55m, against £36.5m in the same period of 1983. The major new ventures already launched include development of the European

A-320 150-seater Airbus, to belp complete the family of commercial alriners coming from the Airbus Industrie consortium. The UK Government is providing £250m towards the UK's the costs of this share of the costs of this venture, leaving British Aerospace (which is building the wings for the A-320) to find more than £400m from its own resources to complete the UK's overall share. The A-320 with overall share. The A-320, with French West German and Spanish participation, is due to enter service in 1988.

Along with that decision the UK Government bas also sub-scribed £60m for the Rolls-Royce share of the new Intersortium's V-2500 engine, des-tined to power not only the Air-bus A-320 but also any other new-generation 150-seat air-liners that may emerge in the mid to late 1980s. Rolls-Royae wenture, as has Pratt and strator" in the UK's own Whitney of the U.S., with other participants including Fiat Aviazione of Italy, Motoren-und Turbinen Union of Wass

Rolis-Royce continue to develop the advanced E-4 version of its RB-211-535 engine, currently used in the Boeing 757 twin-engined jet airliner. Rolls-Royce Itself has also

leunched a new engine, the RTM-322, in conjunction with Turbomeca of France, which is and in guided weapons. For the contern now under development immediate future, several other major new ventures are on the verge of Government decisions which, if favourable, could ensure for the UK a substantial aerospace work-load through the rest of the 1980s and beyond.

One indication of the improving situation in the industry is

> British Aerospace, in addition to financing its share of the A-320, is also subscribing up to £100m for the development of the new Advanced Turbo-Prop (ATP) twin-engined airliner, 64-seater to complement the smaller 748, which itself continues to sell well, and which is being progressively improved ventures so as to continue in production include for some time to come.

Private venture

BAe is also funding as e private venture the further development of the Type 146 four-engined jet feeder-liner, with a Series 300 version seat-ing 125 passengers now being seriously considered, and likely to be given the go abead soon, while the smaller 80-109 seater Series 100 and Series 200 versions continue in production.

At the same time, BAe is continuing development of its existing Jetstream 31 twin turbo-prop aircraft; and its twin-engined Type 125 business jet. Its overall spending through the rest of this decade

Looking further ahead, British Aerospace is continuing to build the single "demon-



The British-designed and built Turbo-Firecracker, by NDN Aircraft of the Isle of Wight, is being offered by Firecracker Aircraft (UK) as the British entrant in the RAF's new basic trainer contest. The aircraft is already on order for training use by Specialist Flying Training of the UK. Right: The British Aerospace BAe 146 four-engined jet feeder-liner is new in

industries in addition to the

Even if earlier difficulties in reaching agreement on a com-mon programme eventually prove insuperable, preventing the kind of European collaborathe kind of European collaboration that most aerospace
industry leaders want to see,
the existence of the edvanced
EAP in the UK, which is being
jointly funded by both the UK
Government and the industry
(including British Aerospace,
Rolls-Royce and several of the
major equipment companies),
will ensure that if necessary
the UK could go ahead either
atone or with a smaller international consortium than
originally envisaged. originally envisaged.

Several other major pro-grammes are likely to result in decisions in the not too distant future, which will also belp to swell employment in the UK industry, and keep its design teams busy into the 1990s.

Work worth £200m

One is the decision on which aircraft to buy as the next basic trainer for the RAF, to replace the ageing Jet Provost. There are four contenders for a 155-

the West German, French, built in the UK by British Italian and Spanish aerospace Aerospace, the remainder being built by Piletus, either in Switzerland or in its own UK fac-tory at Bembridge in the Isle of Wight; and the Australian Wamira II, which if selected would be built in the UK by

Westland Aircraft of Yeovil. Whichever way the RAF's

In addition, there will be substantial support costs over the 20-plus years' life of the basic trainer in RAF service, with e substantial votume of equipment being provided by the ancillary and component ancillary industries.

Yet another decision ewaited

is on the provision of a new tactical transport helicopter for the RAF, to replace the ageing Wessex. Here also the order is likely to be for np to 125 aircraft worth well over £200m, to meet what is called Air Staff Target 404. Three aircraft are in the running — the Westland W-30-404, a development of the aircraft to buy as the next basic W-30-404, a development of the trainer for the RAF, to replace the ageing Jet Provost. There are four contenders for a 155-aircraft, £200m RAF contract. They are the British-built Firecracker; the Brazilian-built Firecracker; the Brazilian-built Firecracker; the Brazilian-built Turbomeca RTM-322 engine selected would be built in its could be used to power any of these aircraft, and it is con-Aviazione of Italy, Motoren-und Turbinen Union of West Turbinen Union of West Germany and Japanese Aero-Engines, representing the three major Japanese aero-engine manufacturers.

At the same time, the Government has subscribed Government has subscribed further iaunch aid to hetp Art to account to the carried for the early 1990s to replace the British-built Firether and the British-built Firether and space programmes and space programmes and space programmes and space programmes alterably under way, or the Earlier Aerospatiale Super the freighter already under way, or the Embrare Turano, which if the French Aerospatiale Super the Earlier the Erroch Aerospatiale Super the French Aerospatiale Super the French Aerospatiale Super the Earlier the French Aerospatiale Super the French Aerospatiale Super the Earlier the French Aerospatiale Super the Earlier already under way, or the French Aerospatiale Super the Earlier the French Aerospatiale Super the Earlier the French Aerospatiale Super the French Aerospatiale Super the French Aerospatiale Super the Earlier the French Aerospatiale Super the Earlier the French Aerospatiale Super the F

quantity production to meet the requirements of regional and community-type airlines throughout the world. The aircraft has already been sold extensively into the U.S. and elsewhere, and production is geared to increase next year, to meet the rising order book. The aircraft is shown over San Francisco in the colours of Pacific Southwest Airlines of the U.S., one of the

In all of these aircraft ven- pride - the real benefits of tures, the one significant fact that emerges is that interne-tional collaboration is involved. The beavy costs of design, deve-lopment and manufacture of any new eerospace product, whether civil airliner, combat decision goes, therefore, some aircraft, belicopter or aero-part of the UK aerospace indus-engine, now virtually preclude try will benefit by some £200m single-company and even singleof direct aerospace manufacturion activities. The more international companies, and governments, that can be brought into any venture, the

wider the ultimate production zins of the finished product, and the wider the burden of costs can be spread.

The UK has always been a strong protagonist of inter-national aerospace collaboration —Concorde, Airbus, the Jaguar and Tornado military combat aircraft, the Anglo-French helicopter programme and many missile and engine ventures all illustrate its willingness to

UK invests £370m

International collaboration is increasingly becoming the only way ahead for new, very high cost civil and military aircraft, missile and space programmes either aiready under way, or mooted for the future. Despite the real difficulties in achiev-

substantial further quantity of desires for project leadership UK equipment being installed, that bolster individual national

wealth creators, not wealth con-sumers. Each and every one, other than the military venmajor export markets, so as to laboration that could bave farjustify the money spent on reaching consequences.

them. The UK Government, whose combined investment in pany in the guided weapons mercial returns on its money.

The UK's other major fixedwing aircraft manufacturer, the state-owned Short Brothers of

light transport aircraft, ranging npwards from the Skyvan freighter, through the Type 330 30-seat and larger Type 360 36-seat twin-turbo propeller of Javelin to date to over engined commuter airliners, with freighter and military variants of which to date total sales amount to more than 400 aircraft. Earlier this year, the company won a contract for the contribution especially in the turnly and sympatric of \$1.55 here.

£25m a year in new technology and capital equipment, and this has enabled it to widen its product range substantially, especially in the "aerostrucespecially in the "aerostructures" field, involving manufacture of parts for other aircraft. The company builds engine pods for the Rolls-Royce RB-211 engine, and recently won a contract to design, develop and manufacture the "super-critical" wings for the new Fokker F-100 twin-jet airliner, thereby continuing an association that has involved making wings for the F-28 twinmaking wings for the F-28 twinjet for many years. Other com-ponents built by the company cover inner wing-flap assembles and nacelle nose cowls for the Boeing 737, main landing gear

Airlines of the U.S., one of the doors and nose cowls for the Boeing 737, main landing gear doors and nose cowls for the Boeing 747, and complete nacelles for the BAe 146 regional jetliner.

Shorts is also planning with Embraer of Brazil to be responsible for the manufacture in the UK of the Tucano basic trainer, if that is selected for the RAF, but of equal significance is the agreement with Embraer to design and probably also develop the next generation of commuter air sumers. Each and every one, other than the military venance is the Embraer Brasilia in world and Embraer Brasilia in world tures (and even many of markets in the 1990s—another those), are expected to find example of international colmajor export markets, so as to laboration that could bave far-

whose combined investment in pany in the guided weapons new commercial serospace ventures announced in 1984 alone exceeds £370m, expects commercial returns on its money. manufacturer. The Seacat and Tigercat missile systems are used by over 20 nations, and the Blowpipe shoulder launched missile has been selected by 16

contract won from the Ministry of Defence worth over £35m was placed for the Javelin ground-to-air missile systems, bringing total world-wide sales of Javelin to date to over

from the U.S. Air Force, with an option on another 48, worth in all over \$660m. The first Sberpa was rolled out of the Belfast factory recently.

Shorts has been investing in the largest is Pilatus of Belfast factory recently.

Shorts has been investing in the range of civil and military lalander twin-engined light transparents. Also in the Islander twin-engined light transparents. recent years at e rate of up to transports. Also in the Isle of \$25m a year in new technology Wight is NDN Aircraft, which has built the Turbo-Firecracker military trainer now on offer to the RAF as a possible basic trainer to replace the ageing Jet Provost, and which is being marketed by Firecracker Air-craft (UK). NDN also has under development an agricultural air-craft, the NDN-6 Fieldmaster.

with the first white fields

of How Green

Marie and the Sept Marie 12

glications of the same

Market Street Co.

M. Berlin, 1988.

And then we

god this wifer is t

in instru

in the state of the

1 kin replacement

All ally a county

France

Complete and a second

(2 To 10 To

The state of the s

The first section of the section of

Mad in the first series

entral en

plant of the section

PER PROPERTY OF THE

Total Section 1

ia italian

Also now making a significant contribution to expert sales is the Edgley Optica, built by Edgley Aircraft at Old Sarum, near Salisbury. This unique near Salsbury. This imique fixed wing three-seat observation aircraft bas been nicknamed "Bug-eye" by many because of its large bulbous cabin providing a wide-angle view, which in conjunction with the aircraft's close fixing areas? slow flying speed makes it highly suitable for surveillance roles of all kinds—such as police, customs, coastguard duties, pipeline inspection, and eerial photography.

eerial photography.

Skingsby Aviation, at Kirkbymoorside in Yorkshire, manufactures the T-87 light trainer, with
especialy emphasis on the
T-87M Firefy 160, a two-sext
military basic trainer version.
Slingsby also makes the gondola
and propulsion ducts for the
Airship Industries' Skyship 500
airship.

Delays in U.S.

Efforts to establish a production line in Northern Ireland to build the U.S.-designed Lear Fan twin turbo-prop business aircraft making extensive use of composite materials, such as graphite/epoxy, have been severely delayed owing to design and development problems with the prototype in the

Belfast, continues to flourish ecross a wide field of activities, covering fixed-wing aircraft, guided weapons and aircraft components of many kinds.

In circraft, the company builds a "family" of small, light transport signals of Defence worth over 135m in the U.S.

Blowpipe shoulder launched missile has been selected by 16 missile has been select built a number of small 12-seat Skyship 500 craft, with craft already delivered to customers in the U.S. and Japan, while it is also now developing the larger, 20-passenger Skyship 600. One of the company's Sky-ship 500s has been used over snip 500s has been used over Los Angeles for TV coverage of the Olympic Games, Airship Industries, which is now controlled by Mr Alan Bond, the Australian entrepreneur, is seeking additional UK Government funding to help develop larger airships



...a wide range of equipment and systems present in the following technical categories:

- ELECTRIC POWER
- TURBO POWER
- ACTUATION
- ENGINE ACCESSORIES
- CABIN SERVICES
- FLIGHT SAFETY
- AVIONICS
- NAVIGATION
- INFORMATION **MANAGEMENT**

SUNDSTRAND AEROSPACE EUROPE

Bath Road ,West Drayton, Middlesex, **England UB7 ODE**

Visit the Sundstrand Exhibit at Famborough International '84 - Booth No. SMI



At McAlpine Aviation, we know how much of an investment you've made in your aircraft. And we also know how much money it costs you every day your aircraft are out of service.

That's why we made sure we invested in the best when we went into the market as an engineering operation.

We invested in the right facilities. We invested in the right staff. Over 150 including a higher proportion of licensed engineers than many of our competitors.

And we invested around £2 million in a comprehensive stock of parts. The result is that we can usually get to work on your aircraft straight away - making sure that you're back in action as soon as possible.

We can deal with almost any aircraft up to 30,000 kgs including Challengers, Gulfstreams, Learjets, Citations and all series HS 125s.

And we can also offer refurbishing and completion services at our extensive Lutonbased operation

At MCAlpine, we know about your engineering and maintenance problems, because we face the same problems ourselves in the day-today running of our own charter fleet.

So call McAlpine first. We'll give you the best service, because we've invested in the best people. Send off the coupon for full details.

Please send me further information about MCAlp Name	
Title	- :
Company	
Address	
Phone	

A COM 107 333 William Hoy in a

The new

Aerospatiale of France and Messerschmitt-Bolkow-Blohm of West Germany are jointly developing the PAM-2/HAC anti-tank helicopter gunship. A total of over 330 helicopters is envisaged in this programme, one of the major new helicopter programmes now under way on this side of the Atlantic (another being the UK-Italian Westland-Agusta EH-101 Sea King replacement aircraft, with a commercial

7,13 € 78 T884 S8 T884

and which he is a state of the control of the contr

distance dance of

List in U.S.

io mitabian 3.

in Nerrings

Harris Andrews

Anna 1 Pres

C. Copper

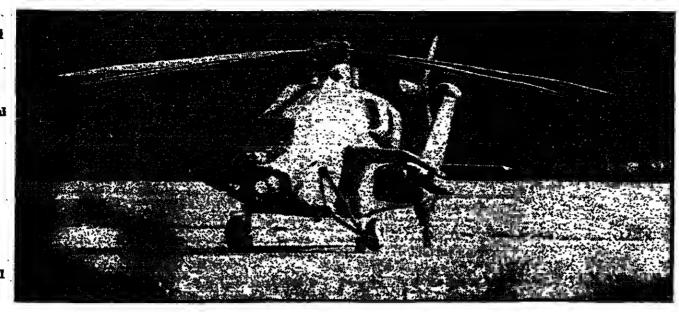
The blocker

S 62.00 E

1

of the

eraggi



Collaboration's charms grow

France DAVID MARSH

THE FRENCH aerospace indus try is guarding against a mood of celebration following its two successes earlier this month: another flawless launch of the Ariane space rocket and the placing of France's first comtelecommunications satellite, Telecom 1.

much room for caution about the future. This is underlined by the sharp swing into a FFr 358m loss for 1983 at the prime aerospace company, the state-owned Aerospatiale, and the 46 per cent plunge in orders received by the aeronautics

industry last year.
Summing up the feeling that
the French aerospace sector is
still not out of is bout of turbulence, Général Jacques Mitter-rand, president of the industry's professional association, Gifas, has recently expressed fears that last year's stagnation is continuing in spite of e pick-up in ectivity in some sectors like

It is also becoming increas-ingly involved in politically and comercially complex questions of international collaboration deals so as to ensure an acceptable volume of future orders.

With the French military and civil market clearly too narrow to satisfy the manufacturers' ambitions, and orders of fighter aircraft and other military equipment to traditional clients in the Middle East falling off as result of lower oil prices, atellite, Telecom 1. French aerospace companies

Back on the ground there is are turning ever more closely to European collaboration deals.

Aerospatiale, as the prime industrial contractor for Ariane, and with more than 25 years of co-operation with Messerschmitt-Boelkow-Blöhm (MBB) in civil aircraft, missiles and satellites, is no stranger to European link-

But it is significant that all this year's milestones in French aerospace concern European deals where governments and industries are trying to act in barmony to stand up to U.S. competition.

cent of sales, the sector is more and the five-nation accord in a combination of difficulties. return to taxpayers. the fighter between exposed to the winds. July to press sheed with feasi- They include poor sales of The first of the new Mirage can be reached.

In addition, the accord reached between Paris and Bonn in May previews joint studies of e military observation satellite, furthering the existing Franco-German collab-oration in civil satellites, while Paris hopes that the two-nation period of 1983. But compared combat helicopter deal could with its foreign competitors eventually include Britain as notably Boeing, Aerospatials

"One can no longer develop

big projects except through international collaboration," says

M Jean-Charles Poggi, Aerospatiale director in charge of strategic planning and budgets.

Dasseult-Bréguet, the state-controlled military fighter manufacturer, which makes the spatiale director in charge or strategic planning and budgets.

He compares building up foreign collaboration to mixing a sharp fall in orders last year good mayonnaise, starting off with well-tried partners such as West Germany and adding new of a drop in military exports.

Rut Dassault-Bréguet, in to spoil the mixture.

possible to the Transell military transport aircraft, where Aerospatele, British Aerospace, sion which best resisted the MBB and Lockheed have previous year's downturn—tacaiready formed a joint study tical missiles (including the famous Exocet). Overall orders

last year dropped 18 per cent to FFr 12.9bn. Aerospatiale expects a grad-ual improvement in business this year, with orders in the first five months of the year np 54 per cent over the same will continue to suffer higher costs as a result of its ex-tremely limited scope for work-

But Dassault-Bréguet, in which the Government has a which the Government has a The preliminary accord in 46 per cent stake, nonetheless Madrid last month has by no recorded net profits of means ended the dispute FFr 394m (FFr 322m in 1982) between Dassault and British

bility studies for a European the A-300 and A-310 Airbuses, 2000 jets has just entered fighter aircraft for the 1990s.

Waiting in the wings are other possible deals such as a possible multi-national follow-in craft, a continuing slump in prospects by announcing a possible multi-national follow-in the figure of the A-300 and A-310 Airbuses, 2000 jets has just entered with the French Air prospects with the French Air prospects has just entered airbuses, 2000 jets has just entered with the French Air prospects with the French Air prospects has just entered airbuses, 2000 jets has just entered with the French Air prospects with the French Air prospects has just entered with the French Air prospects with the French Air p prospective purchase of 40 fighters.

Dassault-Breguet has also just unveiled its new Falcon 900 luxury executive jet, designed to boost its position on the civil market. It has faced complaints from U.S. aircraft makers about allegedly unfair French Govern-ment support for the Falcon

development.

M Benno-Claude Vallières, the doughty 73-year-old chair-man of Dassault-Bréguet, man of Dassault-Breguet, ripostes that government support for his company—as with Aerospatiale—is in the form of repayable loans; and he points out sharply that the Falcon actually gives employment to the U.S. aircraft industry through engine and equipment purchases.

In another international tussle, in the fighter project with Britain, West Germany, Italy and Spein, Dassault-Bréguet has made e strong pinh for overail technical leadership.

continuing in spite of a pack-up in ectivity in some sectors like civil aircraft engines.

Last year the French aerospace industry achieved a turn-cover of FFF 60.3bn, roughly the same as 1962. With exports last year totalling FFr 38.6bn, 65 per content of a frence year totalling FFr 38.6bn, 65 per content of and the five-mation accord in a combination of difficulties.

Satellites

Satellites

Aerospatiale's problems last profits of means ended the dispute for the profits of means ended the dispute for the first time in five dividend to the state. It is one ters will also have to decide groups which actually gives a return to taxpayers.

The profits of means ended the dispute for the first time in five dividend to the state. It is one ters will also have to decide groups which actually gives a return to taxpayers.

The profits of means ended the dispute for the first time in five dividend to the state. It is one ters will also have to decide groups which actually gives a return to taxpayers.

Communities vie for helicopter offset work

Belgium PAUL CHEESERIGHT

THE leading Beigian aerospace companies are searching for new products to lessen their dependence on military and other

Government contracts.

The general recession in the industry has again shown how vulnerable is a sector that depends largely on sub-contracting work or component manufacture for projects conceived

But the increasing need for the world's airlines to renew their fleets and the extensive work being done internationally on new types of aircraft offer a hope to set against the fact that the three companies on which the Belgian industry is built have all suffered or expect to suffer lower profits.

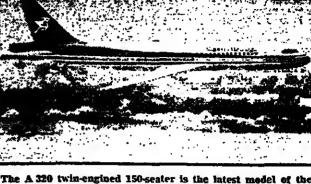
These three are Fabrique Netionale (FN), the old-established armaments and engines group; SA Belge de Constructions Aeronautiques (Sabca); and Société de Construction Aerospatiale (Sonaca).

State funding

The problem is that the weakening effects of the recession have exposed financial difficulties that have made almost inevitable some degree of state funding if the companies are to take part in the research and development activities that assure their future. But state funding in Belgium

is not simply a question of deciding industrial priorities. The communal and linguistic the communal and inguistic division of the country necessitates the provision of funds equitably between the Flemish speakers of the north and the French-speaking Walloons in the south. This is not a new problem in Belgium.

The key test will come when the Government starts, over the next few months, active negotiations to buy a new fleet of heli-copters for the Belgian armed forces, and Flemish interests in torces, and Flemish interests in the north are already claiming nated by Sneema of France 100 per cent of the expected and General Electric of the U.S. offset. But traditionally tha arms industry has been based in Wallonie, particularly et Liège. 1988.



Airbus to be put into development by Airbus Industrie. In addition to the principal partners from the UK, France, West Germany and Spain, there are associates such as Belairbus of Belgium and Fokker of Holland. The A-320 will enter service in the spring of 1988. Cyprus Airways is one of the early purchasers of the aircraft.

Meanwhile, decisions have had to be taken about Belgian

Belgium has a 2 per cent stake in the new short-haul Airbus programme, largely in the role as e sub-contractor to British Aerospace, which manufactures wings for the aircraft. This has been arranged through Belair-bus, which acts as a corporate bridge between the companies and the project managers.

The Government is providing BFr 1.1bn for research and development costs, Between them, Sonaca, Mechanische Constructie Watteeuw and Asco will be making slats and rails for the Airbus wings and it is calculated that the work should bring in annual revenue of BFr 850m when sales begin.

when sales begin.

For Sonaca this will be a Fokker for work on the new continuation of work it is already doing on the A-310 Air
Small aircraft will continue to

But the cost of participation for FN is BFr 1.9bn, Because of participation in continuing programmes. In mid-July participation in the Airbus A-320 and the
CFM 56-4 engine programmes
was settled.

Belgium has a 2 per cent stake constant values. Certainly the programme comes as a valuable addition to FN's military aeroengine activities.

The worksday reality of the industry as it looks to the future is less glamorous than these two major projects, however. The manufacture of parts for the F-16 fighter aircraft, for example, looms large in the industry, accounting for 55 per cent of Sabca turnover.

Licence

Sabca and Sonaca last year received U.S. maintenance contracts for the F-16, while Sabca

play a part in the development The CFM 564 programme concerns FN, which is taking 5 per cent of an engine project dominated by Snecma of France and General Electric of the U.S. Foxjet International of U.S. is planning a BFr 4.6bn investment in a plant in Limbourg province.

A report from Gulfstream Aerospace Corporation on a new concept for increasing a nation's surveillance and reconnaissance capabilities with a single affordable and versatile aircraft type.

How to achieve flexibility and cost-effectiveness in airborne information-gathering systems:

The need: In today's political, economic and social environment, every country, large or small, has e need to know what is taking place along or near its

national boundaries. Keeping informed of events or situations that can affect its resources, political structure, military deployment—even the welfare of its citizens—is an activity that deserves the highest priority in planning for the protection and preservation of a government's

Airborne electronic surveillance equipment and systems provide fast, effective ways to gather the necessary data from which these timely assessments and decisions can be made. By sending or receiving electronic signals, sophisticated devices can "look et" objects and terrain, or "listen to" other emissions and transmissions, and identify their sources and

Unaffected by weather conditions or darkness, these systems not only permit passive information-gathering missions to be conducted over wide areas from high altitudes, but also from within the security of a nation's own borders when the occasion demands. Their effectiveness, of course, is directly related

to the capabilities of the platform which carries them.

It stands to reason that the most suitable aircraft for conducting such vital missions would be one with sufficient size to carry the equipment and operators, several hours of endurance, fast cruise and dash speeds, high operating altitudes, good bandling characteristics in all flight regimes, and unquestioned

dependability of engines, flight systems and airframe.

Ideally, it also would have affordable acquisition costs, and be cost-effective in its operation, maintenance and support.

Gulfstream Aerospace has developed exactly that platform: the Gulfstream SRA-1.

The solution: The Gulfstream SRA-1 is e specialized derivative of the highly successful Gulfstream III executive jet transport, of which nearly 150 are in service with many of the world's leading corporation's and governments.

It meets perfectly the requirements of any government for airborne information-gathering systems with a platform that is fully capable of performing these missions, is affordable and cost-effective.

The Gulfstream SRA-1 can be made available with fully integrated systems designed to satisfy the operator's requirements for one or more of the following missions: (1) Electronic Surveillance; (2) Reconnaissance; (3) Maritime Patrol and Surface

The proof: The concept of using the basic Gulfstream airframe for missions other than executive transport has been convincingly demonstrated by the Royal Danish Air Force, which operates specially equipped Gulfstream jet aircraft for maritime surveillance, fishery inspection, medical evacuation, priority cargo and administrative transport.

In these applications, the aircraft has proven that it can effectively perform missions that require any combination of endurance, size, speed and performance flexibility under the broadest range of operating conditions.

The aircraft: While it retains this unique versatility, the Gulfstream SRA-1 cepitalizes on the long range, high operating altitudes and stable flight characteristics of the basic Gulfstream aircraft to provide an ideal pletform for the most sophisticated airborne surveillance and reconnaissance systems, either electronic or optical, or both.

The Gulfstream SRA-1 satisfies these require-

ments for e superior data-gathering aircraft: Long range: IFR range of 3,600 nautical miles (6,671 km) with adequate fuel reserves provides airborne endurance in excess of 6 hours at long range

 High cruise speeds: Long range cruise speed is Mach 77 (819 km/hr); maximum cruise speed is Mach .85 (928 km/hr). Maximum operating altitude is 45,000 feet [13,716 m].

wide range of conditions, such as hot days and higher elevation airports.

 Engine reliability: Rolls-Royce Spey Mk511-8 turbofans combine extremely high levels of in-flight and on-time departure reliability with excellent cruising fuel efficiency at airliner speeds above 40,000 feet (12,192 m); and offer maximum operational flexibility throughout all flight regimes.

 Cabin size and environment: A flat floor and over 5 feet (183 cm) of headroom extend the entire length of the cabin, or nearly 42 feet (12.8 m). Cabin volume totals approximately 1,500 cubic feet (42.5 m3). A superior pressurization system maintains cabin altitude at only 6,500 feet (1,981 m) at 45,000 feet (13,761 m) to enhance physical well-being and efficiency of the crew on longer missions at higher

The evaluation: We are confident that a thorough examination of the Gulfstream SRA-1 will show that it can meet all of your present and future requirements for en efficient, affordable surveillance/ reconnaissance aircraft.

To arrange a presentation of the Gulfstream SRA-1, or to obtain more information, please contact: Mr. Joseph E. Anckner, Vice President, Interna-



Fokker draws new breath

The Netherlands WALTER FLLIS

THE announcement late last year that Fokker, the leading Netherlands aerospace group. was to develop two new aircraft, the Fokker F-50 prop jet and the Fokker F-100 jetliner, hreathed oew life loto the company at a time when its long-term decline was beginning to seem frantishle. seem inevitable.

While the tried and trusty F-27 and F-28 airliners were and are—still selling, and the assembly of U.S.-designed F-16 fighters was going well, it was clear that the 1990s would re-

mine own aircraft.
The two new Fokkers are more providing the basis for production well beyond the year 2000.

Fokker has also kept up its interest in space projects, often in co-operation with other highstechnology. Netherlands companies, so that the couotry retains an active involvement in satellite development and space probes generally.

On a personal legel, a Dutch sclemist, Dr Wuhbo Ockels, has joined the crew of the Americanspace shuttle Columbia, and is due to take part in a seveo-day mission next year.

Dr Lodewijk van deo Berg—

Tr Lodewijk van quire oew aircraft.
The two new Fokkers are now

in 1988 could yet restore it to full working order and enable it once more to see through clouds of dust and gas deep into

the Galaxy.

Hollandse Signaal, a subsidiary of Philips of Eindhoven, is also involved in satellite technology, while DAF, the heavy vehicle manufacturer, now has a stake in the aircraft industry through repair and maintenance.

chemical experiments io space over a long period.

IRAS, the infra-red astronomical satellite developed jointly by the Netherlands Agency for Aerospace Programmes, NASA of the U.S. and the UK's Scieoce and Engineering Research Council, proved a considerable triumph for Netherlands technology before "expiring" last November.

Now there are tentative plans

Power will be provided hy two rear-mounted Rolls-Royce Tay fao-jets said to be 15 per two rear-mounted Rolls-Royce Tay fao-jets said to be 15 per cent more economical than their predecessors.

In both aircraft, advanced composite materials, on which Fokker has been working for several years, will provide greater strength with less weight. Avionics, hydraulics, hydraulics, hydraulics, larding gear and air-conditioning will all be of the latest type

be available to customers.

Yet without Fokker the efforts of others would be efforts of others would be sadly reduced. From its hase beside Schiphol Airport, Amsterdam, Fokker is the nervecentre and fulcrum of the Dutch aerospace effort. The two new civil aircraft it is now developing are expected to be among the most advanced of their kind in the world, embodying the ex-Hollandse Digital Action of Philips of Eindhoves, also involved in satellite achnology, while DAF, the leavy vehicle manufacturer, now has a stake in the aircraft ingustry through repair and maintenance.

More than 30 other Netherlands of them small—make their own, sometimes highly specific contributions using the services of the Eindhoven-based Netherlands Aerospace Group.

The F-50, which is due to every incomposite materials and the latest engines.

The F-50, which is due to every incomposite materials and the latest engines.

The F-50, which is due to every incomposite materials and the latest engines.

The F-50, which is due to every incomposite materials and the latest engines.

The F-50, which is due to every incomposite materials and the latest engines.

The F-50, which is due to every incomposite materials and the latest engines.

The F-50, which is due to every incomposite materials and the latest engines.

The F-50, which is due to every incomposite materials and the latest engines.

The F-50, which is due to every incomposite materials and the latest engines.

The F-50, which is due to every incomposite materials and the latest engines.

The F-50 which is due to every incomposite materials and the latest engines.

The F-50 which is anxious not only to maintain jobs at Fokker hut is determined to retaio major acrospace capacity in the country, has provided moch of the current programmes.

The F-50 which is due to every incomposite materials and the latest engines.

The F-50 which is due to every incomposite materials and the latest engines.

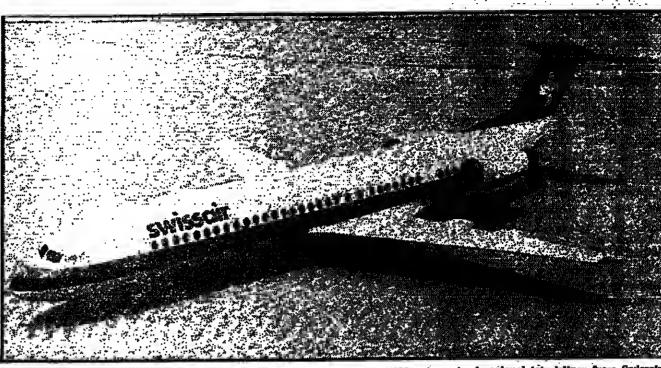
The F-50 which is anxious not only to maintain jobs at Fokker hut is determined to retain major acrospace capacity in the country, has provided moch of the current programmes.

The F-50 which is anxious not only to maintain jobs at Fokker hut is determined to retain major acrospace of the country, has provided moch of the current programmes.

The F-50 which is anxious not only which is anxious not only which is anxious not only to maintain jobs at Fokker hut is d

Now there are tentative plans ing will all be of the latest type Fehruary io a bid to secure to revive it. A shuttla mission and various interior plans will participation in either or both participation in either or both of his oew projects from Japanese industry. The ontcome, in July, was a cootract with Fuji for the supply of tail components for the F-50.

There is also a possibility



Fokker of The Netherlands has recently won its first order for its new F-100 twin-engined regional jet airliner from Swissair, and is negotiating further contracts. The aircraft is powered by the new Rolls-Royce Tay jet engine, now under development The Fokker F-100 is one of two new aircraft now under development by the company, the other being the F-50, a twin turbo-propeller airliner seating about 50 passengers. The two aircraft will represent a major investment by the Dutch company in civil aerospace activities for the rest of this century.

Space opportunities beckon

Italy ALAN FRIEDMAN

THE director-general of Italy's state-owned Aeritalia Aerospace Company, Sig Fausto Cereti, leaned forward in his chair in his Rome office and began from sketching a Space Statioo module oo a piece of paper.

"We have just signed a memorandum with Messerschmitt of West Germany to co-operate on the Columbus," he

"We believe the Columbus space project could be the European answer to President Reagan's invitation for Europe to participate in the Space Station programme," he added, Aerospace executives the world over teod to gat rather excited when discussing oew systems and new products. Sig Cereti, whose Aeritalia has generated a oumber of oew pro-ducts in recent years, is no

He bopes the Italian Government will provide at least \$500m for Aeritalia to Join in a \$2bn European consortiom project on Space Station modules. This, in the aerospace business, is

exciting.

Less exciting and perhaps disturbing has been the lacklustre growth record of the Italian aerospace industry over the past year or so. Recession bas meant slower growth for Aeritalia, while Agusta the other major Italian state-con-

trolled company, bas undergooe a painful reorganisation.

Last year, Aeritalia's turnover grew only 7 per cent to L867m against an average Italian inflatioo rate of 15 per

This recession-induced fall in real terms (despite a rise in profits to L11bo was disappointing for an aerospace group involved in a diverse range of products including the Anglo-German-Italian Tornado combat aircraft, the Italo-French ATR-42 turbo-prop commuter aircraft and the newer AMX light attack and battlefield support aircraft.

While the Tornado and ATR-42 programmes are moving ahead, the AMX suffered a set-back in June when a test flight resulted in failure and the aero-

plane crashed. Sig Cereti says the crash is being investigated, but he dis-misses any talk of a serious

AMX, which is heing developed jointly with Embraer of Brazil. He admits, bowever, that the crash was not at all good for the image of the AMX.

On the brighter side he predicts that 1984 group revenues will show a 20 per cent rise oo last year, hringing total sales to Li,100hn, about 20 per ceot of Aeritalia revenues comes from sales of commercial airfrom sales of commercial air-craft and 70 per cent of sales come from military aircraft, while space-related work accounts for the last 10 per

are also making progress. In return to cent months, for example, can making progress. In return to cent months, for example, can month can make subsequent currency losses.

Agusta, which has undergona various financial and management can month can make upon months, for example, can months, for example, can month can make subsequent currency losses.

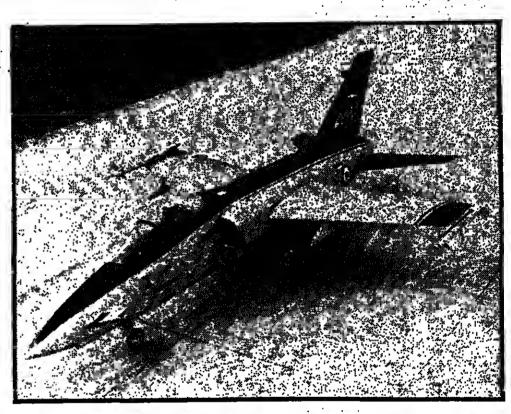
Now, however, Sig Raffaelio tett, the new managing director, Sig Pietro to test managing director, sis

threat to the future of the MAMX, which is heing developed jointly with Embraer of Brazil. He admits, bowever, that the dustry last year were around and civilian helicopter.

In addition to the two big state - controlled aerospace groups—Aeritalia and Agusta a variety of smaller companies are also making progress. In re-

Participants in the joint project are Westland and Agusta. The British and Italian navies are between them likely to order 150 of the military ver-sion and the two Governmenta hope that a total of 900 EH-101 helicopters will be sold even-

tually.
Agusta's problems, meanwhile, have included a L165bn loss last year, the departure of its managing director, Sig Pietro



The Italian/Brezilian AMX light tactical fighter is now under development by Acritalia and Aermacchi of Italy and Emhraer of Brazil, Although the first prototype was lost in an accident earlier this summer, AMX development is continuing and a second prototype is due to fly soon. The aircraft is expected to enter service in 1987, with initial production of 266 aircraft planned. The power-plant is the Rolls-Royce Spey

Ultimate

The Bell **406 Combat Scout**

With its rapid-change configurations, optimum power margins and lightning-fast crulse speeds, the Bell 406 tication to tactical deployment and support. We call it combat-ability.

The 406's advanced composite construction provides inherent combat flexibility, while its stifled noise "footprint" assures minimal

The 406's nap-of-the-earth agility, easy maneuverability and weapons selection capability means even the most severe mission scenarios can be accomplished swiftly, surely and confidently. Thanks in no small way to Bell's reputation for reliability and

· high performance short-field capabilities world-wide customer support service

now approved to FAR 122, FAR 25 and more Backed by de Havilland's global reputation

for design, manufacture and support of modern aircraft - the DASH 8 will surpass your expectations.

The all-new de Plavilland DASH & received Canadian Type Approval — September, 1984.

First deliveries in October, 1984.

The de Havilland Aircraft of Canada, Limited Downsview, Ontario, Canada Telephone: (416) 633-7310

de HAVILLAND aircraft the world approves of

combatability

These are two important signs that this outstanding aircraft has arrived and is ready for your approval.

Here is what you have been waiting for:

the wide-body DASH 8: 36-passenger

· equipped with a full range of

up-to-date avionics

fuel-efficient

Combat Scout brings a new level of sophis-

detectability.

maintainability.



abilities of the Bell 406 Combat Scout, call or write to Cliff Kalista, Vice President, International Marketing, Bell Helicopter Textron Inc., Dept. 641, Box 482, Fort Worth, Texas 78101. (817) 280-3182. TELEX: 75-8229. CABLE: Bell Craft.

Bell Helicopter TEXTRON

U.S. setback forces rethink

Its previously highly successful C-212 Aviocar, a short take-off and landing (Stol) light transport aircraft better known as the "Jeep with Wings," lost a key U.S. defence contract to its rival the Sherpa, built by Short Brothers of the UK.

The contract is to provide aircraft to carry parts and equip-ment for the U.S. Defense Department in Europe. CASA had high hopes of seeing the C-212 choseo for the European Distributioo System Aircraft (Edsa) programme and saw the contract as a toebold in the rich U.S. market.

The failure to clinch the sales breakthrough, which would have counted for at least 10 per cent of Aviocar production for the next five years, has had a sobering effect oo CASA, which is the Spanish national aero-

Space company.
At ooe level the maoagement mined than ever to seek participatioo in joint ventures and in multinational aerospace pro-

This year Casa did not pay dividends. The Institute Nacional de Industria (INI), Spain's State holding company, owns 72 per cent of CASA white the Northrop Corporation and West Germany's Messerschmitt-Bolkow-Blohm (MBB) hold reciones Aeronauticas SA (CASA), received a bitter set-hack.

This year Casa did not pay dividends. The Institute Casa in Spanish participation is expected to be around 10 per which were flight-tested in the past year.

CASA's continuing participation of a joint venture with the Indonesian aerospace company P.T. Its executives emphasise that more important than the admittedly more important than the admittedly modest quantitative increase in Spanish participation.

This year Casa did not pay dividends. The Institute cent.

CASA's continuing participation of a joint venture with the Indonesian aerospace company P.T. Its executives emphasise that more important than the admitted past year.

This year Casa did not pay dividends. The Institute cent.

CASA's continuing participation of a joint venture with the Indonesian aerospace company P.T. Its executives emphasise that more important than the admitted past year.

Spain's State holding company, owns 72 per cent of CASA white gramme was increased this year.

Its executives emphasise that more important than the admitted past year.

Spain's State holding company, owns 72 per cent of CASA white gramme was increased this year.

Its executives emphasise that more important than the admitted past year.

This year Casa did not pay it is expected to be around 10 per past year.

One is the 40-seatet CN-235 arithmer, the encouraging result of a joint venture with the Indonesian aerospace company P.T. Its executives emphasise that more important than the admitted past year.

bave been laid off for a year under the company's restructur. for CASA is committed to de-ing plans and CASA expects to veloping advanced technology save Pta 300hn over the current for the Airbus. and the next financial years. Capital has been increased by Pta 1ho. Forward planning by CASA

has concentrated on three specific participation projects and on the prospects for two of its own aircraft, both of which have made their first flights in the past year.

The most ambitious participation venture coocerns the joint development by the UK, France, West Germany, Italy and Spain of a European fighter aircraft (EFA)-a acheme formerly known as the Advanced Comhat Aircraft (ACA)—which aims to produce a European challenge to U.S. dominance of this sec-

The Defence Ministers of the bas concentrated on setting ils 8ve countries coocerned met 10 Snaucial house in order. At Madrid last month to underline programmes another CASA is more deter the political commitment to While the the political commitment to While the long-term participa-carry the programme through tion projects take shape the The scheme is currectly at the more immediate task at CASA early design stage and CASA's is to follow the success of its early design stage and chases as to romow the auccess of his crart designed to c evectual participation in EFA two leading products, both of the EFA programme.

pectively 13 per cent and 11 tedly modest quantitative in-er cent stakes.

A total of 1,600 employees is the nature of the contribution made to the A-320 project, for CASA is committed to de-

> The third participation project emerged in June when CASA signed a Memorandum of Agreement (MOA) with United Tehnologies' Sikorsky Aircraft for long-term industrial co-operation. Uoder the terms of the MOA. CASA will make major components for Sikorsky's \$-70/H-60 helicopter series and will be involved later in final assembly and in flight

> The Sikorsky agreement is complementary to an existing pact between CASA and MBB which permits the production of parts and the assembly of MBB'a BO-105 light helicopter in Spain. CASA management is hopeful. however, that the new relationship with Sikorsky will tend towards joint research and development in other helicopter

This aircraft is a slightly bigger, faster and more comfortahle version of the C212 Avio-car—a "Range Rover with wings" against the C212's "Jeep." Both aircraft have won high praise for their sturdiness

and versatility.

The CN-235 will be competing directly with De Havilland Canada's Dash 7 and Saab-Fairchild's SF-340 among other middle-range turbo-prop passen-ger aircraft in the commuter/

utility category.

Like its competitors, CASA believes that there is a potential market here for 1,800 civil air-craft and 600 more for military duties.

The other product is a new version, the C101.5, of CASA's advanced jet trainer the C101. The oew prototype, which has much improved avionics and pilot training potential, made its first flight at the end of last year.

CASA is now studying further development of the C101 series and thinking in terms of pro-ducing jointly, with Lats. American and/or Far Essients partners, a tactical compat air craft designed to complement

define chartege

20.00 an bilati Comment of gate that the limit is

Landing ADV TO THE TAX CONSTRUCTION ! Cas Devel 1 1 1 di republicani 3 & Numer THE 2" . . 14" 15 20 400001 21 and a far of this way to a second and this way to be second as the s

Entrante and the capacity of Principle in their last

> Sweden HWOSE CIVE

200 St. 1. Stat

man and the first first. The state of the s

Alban and the

The segment of

The state of the s

Sam in the same

19 PH 11 FM

Colours 1

The state of the s

iles.

Year. Si keta a same

West Germany

. A. A. A. Chai 32 136

je i artiner from

the like and from the period of the period o

1 - 174 Jaines

We died at

A fact of the

Constitution of the

17:JE141

S. Break

tol state

TO RESE

Tree States

780 PM

of the second se

Hat Made Inch

the Fish and

RUPERT CORNWELL

THERE ARE two ways of lookright and the ways or how-ing at current developments in the West German zerospace industry. One view is that of Herr Hans Arnt Vogels, chief executive of Messerschmitt-Bölkow-Blöhm (MBB), the country's largest zerospece

Herr Vogels talks of a phase of "consolidation" after the ctic expansion of recent years and before an expected new take-off in 1987. But others are less optimistic. They believe that "consolidation" might well be a cuphenism for retrenchment and cutbacks.

Incontrovertibly, though, MBB must be listened to. With almost 37,000 employees at the end of 1983, it accounts for around two-thirds of the total German aerospace

There is hardly a multi-national programme in which MBB is not the German participant, and the fortunes of the company, with headquarters in the quiet town of Ottobrunn, near Munich, are a key barometer of that ever-sensitive topic-West Germany's ability to keep pace in high technology.

MBB is now in the midst of a far-reaching programme of diversification. In both 1983 and 1984, its traditional aircraft building business will account for only half of total sales, of DM 5.9bn last year and a shade

less this year.
Indeed, the greatest growth is expected in the space sector, while the company is moving (or has already moved) into areas like factory automation and high-speed magnetic trains.

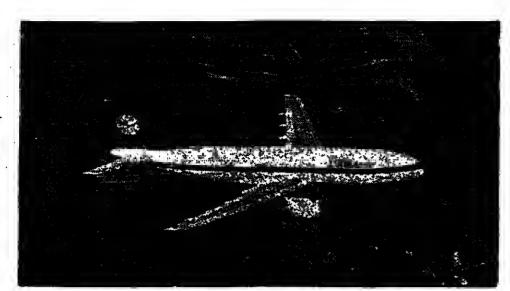
Swirling changes

The slowdown likely up to 1986, if seen in a historical per-spective, is in some ways no more than a reasonable pause to catch breath after a decade of swirling change. Ten years ago MBB's turnover was only DM 1.5bn. Since 1974 it has doubled its workforce, quad-rupled its sales, and also completed its merger with VFW. formerly the second West German serospace concern.

At the same time, diversification has been matched by a basic commitment to collaboration abroad as the road to steady expension. Joint wentures, of course, have been imposed by recent history on the military after of the West German aerospace industry, which covers about two-thirds

But Allied unwillingness to the smaller privately-owned air DM 800m, against DM 337m last tolerate a fully independent craft manufacturer intervear.

German arms and defence in mittently but inevitably The real impetus came with



West Germany is a major participant in the European Airbus Industrie venture, with Laftbansa, the fiag airline, a major buyer of both the large 250-seater A-309 and the smaller 220-seat A-310 Airbus above

and military aerospace projects showing signs of coming to an the go-ahead for the A-320, for end. Military work remains which the company is a sub-hampered by the permanent contractor. pressure on the national de-fence hudget and the financial weakness of Third World nations, which has cut deeply into export markets.

Typical is the state of the European A300/310 Airhus pro-gramme, in which MBB has a 37.9 per cent stake. This year only 45 Airbuses will roll off the final assembly lines in Toulouse against 47 in 1983. Next year, MBB executives glumly forecast, the figure could drop to 35—and almost certainly cause lay-offs among Cerman workers on the Airhus German workers on the Airbus

programme.
The Bonn Government's approval of public funds for the development of the smaller A-\$20 Airbus will not imme-diately soften the blow. The first A-\$20 delivery will not be until 1988, and so far orders for the new aircraft have been singgish.

The key military project is the Tornado strike aircraft, which is being produced by MBB at the rate of 42 a year. But when deliveries to the air forces of the three participant countries (Britain, Italy and West Germany) have been com-

are stagnating. Civil work has is looking for the rebound that been hit by the recession in the ought to come MBB's way only of 1987.

More importantly, Dormer is expecting space ectivities, and the success of its Do-228 feeder turboprop aircraft, at least to turboprop aircraft, at least to make up its losses on the mili-tary side. Dornier rections that turnover will recover to But the most spectacular diversification of MBB could much more quickly, and raise investment this year from DM 34.5m to DM 50m.

The reasons for Herr Vogel's The reasons for Herr Vogel's longer-term confidence at MBB are somewhet more grandiose. One is the A-320, but the company is set to be the German partner in the "J-90" (Eurofighter) advanced combat aircraft, ratified in Madrid last month by five participating European Governments.

Has this summer confirmed his company's interest in securing company is interest in securing company in the first part of the Friedrich Flick industrial group, of which Herr Vogels was, until last year, a top manager before moving in MBB.

Agreement signed

West Germany will have 250 of the 1,000-aircraft Eurofighter programme, the largest multi-

Franco-German military hellcropter programme, kinking MBB
with the French State-owned
Aerospatiale. The project will
carry on from the existing
PAH-1 and BO-105 helicopter
PAH-2 and BO-105 helicopter

Troopter MBB in its ambition
of DM 1bn of new sales 2 year
from the 1890s.

Many analysis helicopter

pleted, export orders will be required to continue production beyond 1068 or 1889.

The owners are mixed, however, the fastest tyrowth at MBB will ever. Greece, once a hoped for be on the space side. While customer, has said no; but Saudi sales of its defence division may Arabia could buy up to 40 the space side. While customer has said no; but Saudi sales of its defence division may shrink from DM 1.9hm in 1983, to DM 1.4hn in 1984, satellitte and other space activities will be carry on from the existing part of the carry on from the existing part of the continue production programmes.

In the short term, however, the fastest tyrowth at MBB will ever. Greece, once a hoped for be carry on from the existing part of the continue production programmes.

In the short term, however, the fastest tyrowth at MBB will ever. Greece, once a hoped for be carry on from the existing part of the continue production programmes.

In the short term, however, the fastest tyrowth at MBB will ever. Greece, once a hoped for be on the space side. While the continue production is the short term, however, the fastest tyrowth at MBB will ever. Greece, once a hoped for be on the space side. While the continue production is the short term, however, the fastest tyrowth at MBB will ever. Greece, once a hoped for be on the space side. While the continue production is the short term, however, the continue production is the short term, however, the continue production is the continue production in the short term, however, the continue production is the continue production in the short term, however, the continue production is the continue production in the short term, however, the continue production is the continue production in the continue production is the continue productio A similar cycle has already and other space activities will

This year, however, Dornier ject, called Eureca, whose first

MRB-ERNO is also heading joint German-Italian study group which is due to make a detailed proposal—code-named Colombus—for participation in the U.S. Manned Space Station programme, after feelers were put out in a recent tour of

come much more quickly, and moch nearer home. Herr Vogels has this summer confirmed his

Flick is known to be interested in selling Krauss-Maffei, which makes the celebrated Leopard tanks. But the transaction has caused some programme, the largest multi-national dafence venture since the Toxnado.

Six weeks earlier, moreover, and in the Boum Defence Minian agreement was signed in stry, which is uneasy at having Bonn and Paris for the PAH-2 a single supplier at the other

from the 1990s.

Many analysts believe that a compromise will be reached.

MBB will get effective management of Krauss-Maffel but only through a consortium of new owners. These would embrace other West German defence concerns like the Diehl group of Nurembers and DWKA of Karlt.

But Allied unwillingness to the smaller privately-owned air tolerate a fully independent German arms and defence industry has propelled West Germany to accept, perhaps more quickly than most, the inevit-being taken under the wing of able: that major defence and civil programmes are now beyond the capacity of a singla country.

The irouble is that both civil the smaller privately-owned air interdistriction intermities in the use of the success of the Spacelab mission last November and vindication of the jewel of West data systems. In view of Herr Germany's space programme. It was handled mainly by MBB-spacelab will be followed up hy a retrievable carrier prosurprising. Meanwhile, MBB is examining

THE SYSTEMS the aid of alectronics. APPROACH cost-effective systems. company keeps in weapons systems,

Whethar moving about in space or attempting to track aircraft from the ground, modern man would be lost without

Right from the beginning of aeronautics, the men who founded Thomson-CSF have taken part in the great adventure of aeronautics, designing aviation radiocommunications equipment. Thomson-CSF is the leading French com-pany in the field of elactronics for government and industry, and thus has acquired a unique experience which is now put to use on all five continents. This axperience has permitted the development of highly efficacious and

In a continuous effort to create new technologies to meet the usars' emerging needs, the constant touch with these users. Thomson-CSF is continuously improving its airborne radiocommunications equipment, navigation aids, air traffic control and air defence systems, data-processing equipment, electronic wartare systems and simulators.

The systems concept means being abla to provide an overall solution to the multiplicity of problems that users are faced with.

Branche Equipements eranzie zuppenants 23 rue de Courcelles 75362 PARIS - Cedex 08. FRANCE Télex : TCSF 204 780 F.

EQUIPMENT AND SYSTEMS LTD. Hunting House-Central Way North Feltham Tracing Estate FELTHAM MIDDLX Tel 144-1) 7516242. GREAT BRITAIN.

THOMSON-CSF

AIR CARGO

ATTO

OCTOBER

The Financial Times is proposing to publish a survey in October on Air Cargo. The editorial will include articles on:

- —The role of the air-freight forwarder
- -The role of the British Airports Authority
- —The role of the major airlines—British Airways
 - -British Caledonian
- -The Heathrow cargo centre
- -The specialist air cargo operators
- -Cargo at the regional airports
- -The role of the couriers in air cargo

For further information and advertisement rates please contact:

GUY MAINWARING-BURTON

Financial Times, Bracken House, 16 Cannon Street, London EC4P 4BY.

Tel: 01-248 8000 Ext. 3606, Telex: 885033 FINTIM G

FINANCIALTIMES

The size, contents and publication dates of Surveys are subject to change at the discretion of the Editor

SAAB links with U.S.

Sweden

DAVID BROWN

THE AEROSPACE industry of Sweden now has its hands full with two major projects.

First, it is breaking into the regional airliner market with its new SF 340 twin turboprop, which SAAB-Scania is now market in a joint restore with

keting in a joint venture with Fairchild Industries of the U.S.

Second, it is trying to fend off threats to its next-generation military aircraft—the JAS 39—posed by increasingly expensive dollar-denominated foreign con-

On the commercial side, the SF 340 35-seat airliner has started rolling off the production lines in Linköping and is being delivered to customers in the U.S. and Europe following a four-year development pro-gramme and an investment of SKr 1bn.

To cut its dependence on military procurement, SAAB plans to raise its civil aircraft turnover to half its total avia-

If the SF 340 project is to break even, officials estimate they will have to sell 200 aircraft, an estimated 10 per cent of the world market. About 130 aircraft are now on order. It is competing with de Haviliand Canada's Desh 8 and Embrace's Brasilia 120, among others. The basic model sells

The work has been divided so that Fairchild produces the wing assemblies, fin and interior, while SAAB is responsible for the fuselage and for final assembly in Sweden. The

SF 340 is powered by General Electric CT7 engines. It has a range of 1,500 km and a speed On the military side, construction of the new JAS 39, already hard-pressed military duties, with minimal ground communic designed as Sweden's next budget.

These options may not suffice, on very short airstrips or rural decisions.



now the largest industrial project in the country.

It calls for delivery of some 140 aircraft, together with weaponry and equipment to a total value of SKr 32.7bm. A SKr 10bn contract has already been awarded by the Swedish Defence Materials Procurement Agenter to 3 special industry. Agency to a special industry group which includes SAAB, Volvo and Ericsson, among others, for an initial batch of 30

Under threat

But the project is being threatened by the high proportion of increasingly expensive deliar-denominated foreign contract, some 27 per cent of the total, and an estimated SKr 5bn shortfall between the allocation and actual cost has developed.

Tha defence ministry may consider deferring some aircraft purchases and cutting back on weapons systems rather than face a controversial re-

however. "Whether we can roads and will not require make up the difference with specialist maintenance crews. these savings has now become uestionable," a Defence MinisSwedish Riksdagen (Parlia-

try official said recently. The Swedish Government is quick to stress that a final decision can be avoided, at least for some months, until the air-

composite wing. SAAB-Scania is responsible

for 60 per cent of the work including airframe construction
and systems integration. Volvo
is co-producing the single engine gramme to market similar and systems integration. Volvo is co-producing the single engine gramme to market similar with General Electric and the Ericsson Telecommunications Group is making the radar, sensor and target acquisition systems as well as the display.

Like its predecessors—the Viggen and Draken—the JAS 39 Gripen is designed for attack, intercept and reconnaissance The Nordic nostal and tale.

In space technology, the Swedish Riksdagen (Parlia-ment) has allocated funds for a

joint Nordic telecommunications satellite project designated Tele-X, with start-up costs of SKr 575m. Following a one-year craft reaches the production stages.

Among the major foreign subcontractors are General Electric (the F-404 engine). Lear Siegler services of the Nordic countries. contractors are General Electric radio and data transmission (the F-404 engine), Lear Siegler services of the Nordic countries (electrical flight systems) and L. M. Ericsson is to produce British Aerospace, which beat advanced payload components, Rockwell to develop the all-while SAAB-Scania will provide the platform guidance system as well as other computer and

structural elements.

The Nordic postal and telecommunications responsible for the allocation

Export sales pick up as industry adapts

Israel DAVID LENNON

THE first flight of a new type of executive jet, U.S. Congressional approval of funds for the Lavi (Young Lion) fighter pro-ject, and co-operation between the manufacturers of two competing "drones" bave been the main developments in the Israeli aerospace industry in the

mance has also much improved since the disappointments of 1982, when sales fell sharply. One of the keys to the partial recovery, according to executives in Tel Aviv. is the speed with which Israel adapted itself The Westwind Astra business jet made its first flight in March, and deliveries are due to bagin in October next year. It is manufactured by the local giant, Israel Aircraft Industries (IAI), which has sold more

tries (IAI), which has sold more than 350 aircraft of the earlier Westwind 1100 series.

The latest in the line developed from the Jet Commander programme bought from Rockwell of the U.S. in 1968, the Astra has a range of 3,000 miles and a cruise speed of Mach 0.80. The company has already sold 10 Astras and received orders for another 15.

ceived orders for another 15.

The decision by the U.S. Congress to overrule the Pentagon and allow Israel to use \$250m in military grants for research and development expenditures in Israel for the Lavi combat aircraft provided a major boost to the prestigious project, which

to the prestigious project, which some people felt was beyond Israel's financial capabilities.

This allocation made it possible for work to be pushed ahead on developing the Lavi despite the country's severe economic problems. It is believed within IAI that this has now maranteed that the \$1.4nn lieved within IAI that this has now guaranteed that the \$1.4bn project will be completed.

The prototype of the Mach 1.85 Lavi is due to fly early in 1986 and, following a Defence

Ministry request to speed up the project, first deliveries of the 300 aircraft intended for the Israeli Air Force should begin

Bet-Shemesh Engines, which is to produce parts for the U.S.

the U.S., which is Pratt and RPV was needed. Whitney's parent company.

The sale price was reported to be more than \$10m. This may go some way towards easing its continuing financial woes, which are said to include an accumulated deficit of \$60m. Bet-Sbemesh Engines, founded ast year.

in 1968, makes engines for tha
The industry's export perfor Fouga Magister training aircraft and for Tadiran's pilotless drone. It also makes components for the modified J-79 engines for the Pbantom combat air-craft, while in the civilian field it produces industrial gas tur-

> The makers of the country's two competing mini-Remotely Piloted Vehicles (RPV), IAI and Tadiran, have now formed a Over the next few years they

news recently. This summer, 40
per cent of the Government ownd company's shares were following a decision by the capacity and resources, it would be unwise to ignore another ownd to United Technologies of Defence Forces on what kind of quixotic it may appear at

photo and panoramic cameras linked to ground control stations. The Scout, which can carry a payload of 38 kg, bas to be launched from a truck-mounted ramp, while tha 30 kg payload Mastiff can also take off under its own power from a

Hundreds of Israell companies will work as sub-con-tractors on the Lavi project. Typical of these is Iscar Blades, which won the substantial conradiran, have now formed a paints will work as substantial confinit company to market their RPVs, thus ending the fierce Typical of these is Iscar Blades, competition between the IAI's which won the substantial conscout, made by the Israeli Army and Air Force, and Tadiran's for the Lavi engine. Iscar exports the next for years the ports 90 per cent of the 500,000 blades it produces each year. ports 90 per cent of the 500,000 designed launcher blades it produces each year.

designed launcher purchased abroad.

designed Pratt and Whitney intend to develop one system to Given Israel's success in PW-1120 engine for the Lavi, replace the existing two, either carrying out projects which also received cheering financial by making a hybrid nr production would appear beyond its

Cameras

RPVs are used mainly for battlefield reconnaisance. They may be equipped with TV, telephoto and nanoramic cameras.

Amit Industries and Fairabild. of the U.S.

In the first staga the Israel Space Agency is engaging in Information exchange with NASA of the U.S. about the use of tha Space Shuttle. The fiveoff under its own power from a year plan calls for building a runway or a road. Both have low-earth orbit platform to a flight endurance of seven carry out several experiments. bours and an operating range A more ambitious goal, 10 years hence, envisages a com-munications satellite and possibly a meteorological satel-lite.

The plans also include locallydesigned and built satellites which could be launched from Israel using either a locally



A high-technology vision

Greece ANDRIANA IERODIACONOU

SINCE 1979, when Hellenic Aerospace Industry (HAI) began operation with managerial and technological help from Lockheed International and other overseas companies, it bas been saving millions of dollars in vital foreign exchange by handling all repair and mainto-nance for the Hellenic Air Force, and to some extent Olym-pic Airways, the national car-

HAl's \$400m "state of the art" facility at Tanagra, north of Athens, is Greece's single largest industrial investment, and the jewel in the crown of the national arms industry. The Socialist Covernment is looking to HAI to fulfil its visions of a igh-technology industry in

The company also overhauls, repairs and maintains various types of aircraft from a number of foreign countries through contracts won against toogb international competition. HAI has been particularly successful

Contracts are reported to include Egyptian C-130 "Hercules" transport aircraft, with agreements reached more recently for the same type of aircraft with Jordan and Canada

aircraft with Jordan and Canada (Canadair). A contract with Nigeria is said to be imminent. A U.S. Air Force in Europe contract for J-79 engines was recently renewed for two years, according to HAI officials. The company manufactures door frames for Airbus Industrie and does naint work on Aeritalia's does paint work on Aeritalia's G-222 aircraft. Electronics work includes the repair of Sidewinder missiles for Nato and the Hellenic Air Force.

Spin-off

But HAI is proudest of two recent deals with French companies, again seen as a spin-off of the Papandreou and Mitterrand governments' close ties. The one, with Snecma, bas made HAI an official overhaul and maintenance centre for ATAR engines for the Middle East and other countries.

managing director, Mr Panagiotis Fotilas, HAI is poised on the hrink of a new era. It hopes to make the leap into aircraft assembly, and, in the long-term future, into full production.

These plans are being made

As with Turkey, the decisive development is expected to be the long-planned purchase of about 100 new fighters by the Greek Government to update the rag-bag of mostly older paircraft which make up Greece's present air power.

The transformational which make the technological and managerial know-how it required.

Mr Fotllas vehemently denies reports from within the company of alacking productivity and increasing workers demands with HAI now a fully present air power.
To offset the purchase—more

To offset the purchase—more than \$2bn—which has been dubbed the "buy of the century" and will be tha largest single arms purchase in the history of the Greek armed forces, companies have been invited to offer the transfer of valuable technological knowbow to HAI.

In this way the company hopes to participate not only in

repair and maintenance but also in parts manufacture and the assembly of aircraft. The Government recently

announced that it has narrowed down its choice to the U.S.-made F-16 and F-18 jets and the French Mirage 2000. A mixed Franco-American purchase package is thought likely.

But the British-West German-But the Britisb-West German-

ATAR engines for the Middle
East and other countries.

The second, with Dassault, gives HAI overhaud and maintenance rights for Mirage F-1
But now, according to its managing director, Mr requirements into account," the HAI director sold

in the Middle East, HAI officials say, to Greece's close political ties with the Arab world.

Contracts are reported to development is expected to be mainly the early termination of the 1976 contract with Lockheed International which provides that technological and management.

Brazil

gi zunit.

with district

Sala

taire di

ng ha then commission . To add

Same and the state

And the state of the

material state of Z L

so eff

WOI

Strain of the first

SERVICE OF THE Allery Same Live State of the second state of the second Books of the case

killer to a comment of the comment of

The second secon

the fit often to the

Letter Barrier

SMI

atate-run company.
"Where there are fair

mands by employees these will be met. But we are on the strictest orders from the Prime Minister himself to run HAI according to impeccably private-enterprise criteria," said Mr Fotilas.

Advantage

A big advantage in ending the contract early, in the Greek view, is the saving of an esti-mated \$300m a year in Lock-heed salaries. Although HAI officials are proud that the company's Drs 1.3bn losses for 1982 were trimmed down to 1982 were trimmed down to about Drs 1bn they are still about Drs Ibn they are still worried about its total long-term and short-term foreign debt of about Drs 23bn.

Hitherto, HAI officials expressed their impatience with what they considered a sluggish rate of technology from the U.S. They also felt that the supervision of marketing by Lockheed created a conflict of interests, since HAI

HAI director said.

For HAI a Tornado purchase would have meant full partnership with Panavia, the manufacturing company, and through that a possible "in" on the planned new European aircraft. The

assembly after a recently ready to contemplate such an ed hoc basis.

Clinched deal with General involvement.

For the past two years HAI ences with Lockheed but that has been in the throes of subasis.

The past two years HAI ences with Lockheed but that has been in the throes of subasis.

The past two years HAI ences with Lockheed but that has been in the throes of subasis.

The past two years HAI ences with Lockheed but that has been in the throes of subasis.

Expanding symbol of modern development

HIGH ABOVE the West Java plain lies the city of Bandung, the home of the centrepiece of Indonesian industry and symbol of its modern development, P. T. Nurtanio National Aerospace. Indonesians are rightly proud

of Nurtanio's growth and development, when it started only eight years ago it had a work-force of less than 2,000. Now it employs more than 11,000 and runs extensive training programmes on all aspects of aerospace design and manu-

Nurtanio is the brainchild of Professor Jusuf Habibie, who ln the mid-1970s gave up his joh as an executive vice-president of Messersmitt-Bölkow-Blöhm in West Germany to return to Indonesia and found a national aircraft industry.

In its eary stages Nurtanio concentrated on the production of the CN-212 Aviocar built under licence from Construcciones Aeronauticas (CASA), of Spain. More than 60 of these, 19-28seat twin engine turbo-prop aircraft are now in operation,

mainly with domestic users, though there have been foreign buyers, including the Thai armed forces and Air Guam. Nurtanio says a further 70 CN-212s have been ordered. It has also entered into a number of agreements to produce helicopters under licence. Under an agreement with Agrospatiale

of France it produces the Puma NSA-330 and the Super Puma

other companies including Boeing and British Aerospace. For more than two years BAe has collaborated with Nurtanio on a missile development programme centred at the com-pany's armaments headquarters at Jakarta in central Java.

British Aerospace has alsn been collaborating with the Indonesian Air Force over the past nine years and has sold 20 Hawk trainer jets. Professor Habible says Nur-

tanio is been to move into the military field, but at present it is concentrating on the production of its 40-seater twin-

Indonesia KIERAN COOKE

engine turbo-prop CN-235, a multi-purpose machine de-signed specifically to meet the needs of developing countries.

The CN-235, developed and manufactured jointly by Nnta-nio and CASA, is proudly referred to as Indonesia's own aircraft. It underwent its first test flight at the end of last year and is due to enter service next

Nurtanio says that more than 50 per cent of the aircraft is made in Indonesia and that it has received more than 100 orders so far, though this figure has been questioned by some

Professor Hablble has also hinted that Nurtanio would be willing to assemble the European Airbus for Indonesia's flag carrier, Garuda. British Aerospace bas also expressed its willingness to come to an agree-ment with Nurtanio for the manufacture of components or even Indonesian assembly of the new BAs 146 four-engined jet zirliner.

But Nurtanio is not without its critics, some of them very senior people in Government. Many hava questioned the wisdom of putting millions of dollars into capital-intensive projects like Nurtanio in a

projects like Nurtanio in a developing country where the average per capita income is still below \$600 a year.

Professor Habibie, regarded by some as the supremo of indonestan technological development and by others as a free-spending and too ambitious technocrat, has so far had the full support of President full support of President

Suharto.

He has also been able to take advantage of the large domestic demand for transport in Indonesia, a country of more than 14,000 islands spread across an extent greater, coast to coast, than the U.S.

Local customers, according to Indonesian trade legislation, can buy foreign alregaft only if Nurtanio cannot supply them, while some operators have criticised the CN-212 for its

high operating costs.

Production of the CN-235, meanwhile, is behind schedule

in agreement was a frame it produces the Puma NSA-330 and the Super Puma NSA-332 helicopters.

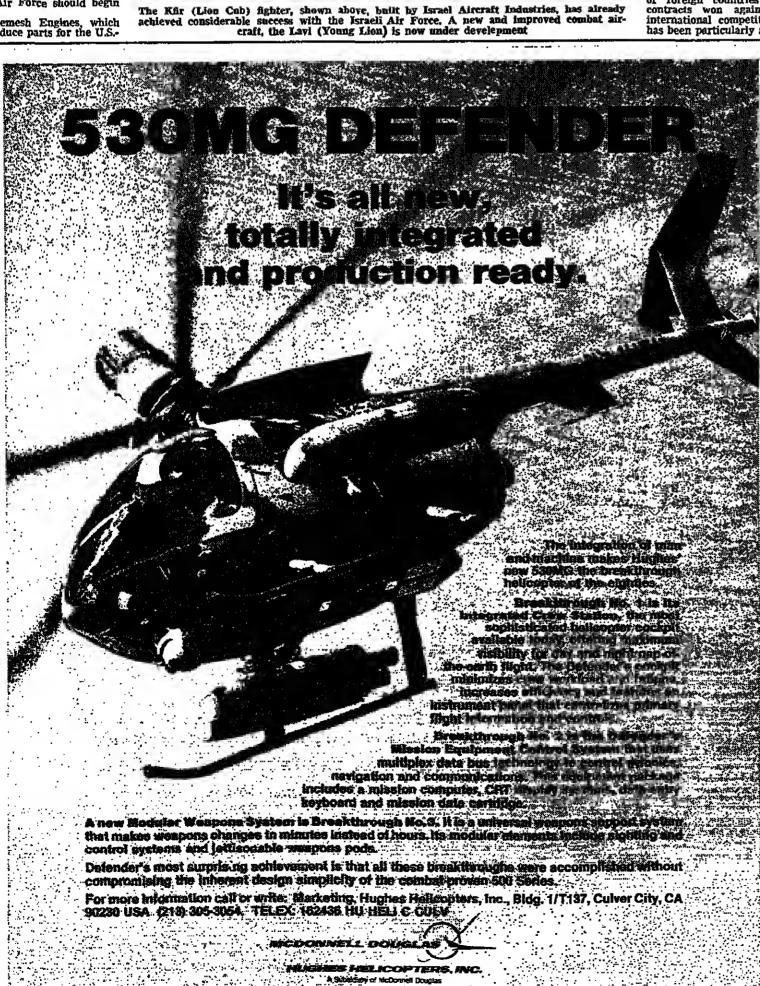
There are agreements with Bell Textron of the U.S. and MBB-Kawasaki to make the Bell-412 and BK-177 helicopters aircraft of its type on the world market, comparing its price—agreement with MBB to produce its 109 helicopter. It already manufactures the MBB 105 belicopter.

While joint ventures have tended to be dominated by the West German and Spanish agreements. Nurtanio has various technical agreements with seater airliner.

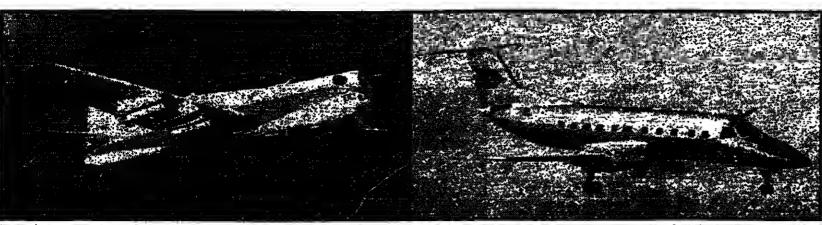
Plans include the manufacture of a bigger version of the would be capable of carrying 60 would be capable of carrying 60 agreements. Nurtanio has various technical agreements with seater airliner.

Froduction or the U.S. meanwhile, is behind schedule and engineers working on it say there are still a number of technical problems to be solved. But Proffessor Habibie insists that Nurtanio and he wants Indonesia to be similar aircraft built in Brazil.

Plans include the manufacture of a bigger version of the would be capable of carrying 60 would be capable of carrying 60 at Nurtanio, making aircraft in no way inferior to those of other countries."



Charles 28 The



Embraser's Tucano light training aircraft (above) is another contender for the RAF's big basic trainer aircraft contest. If selected, the Tucano would be built in the UK by Short Brothers of Belfast. Embraer has also built up a big business in the manufacture of small airliners. The latest in the line (right) is the EMB-120 Brasilia, a 20-passenger twin turbo-prop airliner, now under development

Embraer steps up sales drive

Brazil ANDREW WHITLEY

"THE BIGGER WE ARE, the bigger the fall," Col. Ozires Silva, President of Embraer, said recently, "We decided to leave the big losses to the big manufacturers," he added.

Despite this laudable caution about the dangers of over-rapid growth, Embraer, the Brazilian state-controlled aircraft maker. is preparing for e high-speed take-off over the next few years. As three new models—two of them wholly Brazilian-designed —come into commercial produc-tion, sales are forecast to double over this year's estimated \$170m. to \$180m. Embraer says this will put it above Piper in the world mannfacturers' league table. Piper is its long standworld mainfacturers league table. Piper is its long standing partner for light aircraft, Embraer also claims that it will soon be dead." But the will put it on the same level as Cassna and Beechcraft, the to maintain its strategy of avoidother leading U.S. manufac-turers of light aircraft.

The state of the s

Process :

A Secretary Andrews

Arrest
Free to the second of the three to the second of the s

ment

Selvantage |

As the leading force in the civilian, or indeed on any one young Brazilian aviation and market. aerospace industry, Embraer This year, when half its celebrated its fifteenth anniversary this month and is now preparing its new 30-seater turbo-tional. The traditional ratio for prop commuter aircraft, named the Brasilia, for the Farn-borough Air Show and a Euro-pean demonstration tour, thumb is regarded as one-third

dicate a potential market of npbe a good visiting card," says to 20,000 small aircraft in Sr Ozlio.

An accident to the first prototype of the AMX last May dashed the company's hopes of showing the new aircraft itself at the show, as had been planned. It also set back the \$600m programme—in which Brazil has a 30 per cent interest —by several months.

Describe the latest delay in the state of npbe a good visiting card," says to 20,000 small aircraft in Sr Ozlio.

The Brazilian and UK company is greed broader ranging collaboration agreement to work on other possible for the show, as had been planned. It also set back the first signs of e domestic recompliance—in which Brazilian company by several months.

The Brazilian and UK company is greed broader ranging collaboration agreement to work on other possible for the work on other possible sofint ventures. These are to be discussed by e joint planning company by several months.

Significantly for e company whose impetus grew out of the Brazilian market of npbe a good visiting card," says to 20,000 small aircraft in Sr Ozlio.

The Brazilian and UK company is greed broader agreement to work on other possible foint ventures. These are to be discussed by e joint planning collaboration agreement to work on other possible foint ventures. These are to be discussed by e joint planning collaboration agreement to work on other possible foint ventures. These are to be discussed by e joint planning collaboration agreement to work on other possible foint ventures. These are to be discussed by e joint planning collaboration agreement to work on other possible foint ventures. These are to be discussed by e joint planning collaboration agreement to work on other possible foint ventures. These are to be discussed by e joint planning collaboration agreement to work on other possible foint ventures. These are to be discussed by e joint planning collaboration agreement to work on other possible foint ventures. These are to be discussed by e joint planning collaboration agreement to wo

Despite the latest delay in the joint project, both sides are pressing ahead with e programme which Sr Ozilio Silva. Embraer's commercial director, says could remain in production for 60 Processes and forced duction for 20 years. A formal decision by the Brazilian and Italian Governments to sanction the tooling-up necessary for full-scale production is expected

Strategy

ing dependence on any one type of aircraft, whether military or

The second of the second secon

In terms of profits, he says, Embraer is likely to end up marginally in the black, based on previous years exper-ience of an end-year rush in sales. Only twice in its history —in the first year and in 1981— has Embraer, which is financed

by private capital, shown a loss. many of the airline operators who have taken out options on the Brasilia turn them into confirmed orders.

So far, out of the 119 options on the Brasilia aircraft only 27 ported. have been confirmed—from three U.S. regional carriers.

borough Air Show and a plant pean demonstration tour,

At Farnborough the Brazilians will be making their biggest sales drive so far. Apart from the Brazilia, they will be showing the Tucano, their successful basic trainer/ground attack aircraft, and a mock-up of the AMX. a subsonic jet trainer demonstration tour,

thumb is regarded as one-third have been short-listed for the success, the company in the currently factored under licence in Northment of a family of models. According to the factored under licence in Northment of a family of models. According to the currently factored under licence in Northment of a family of models. Its sm factored under licence in Northment of a family of models. Its sm factored under licence in Northment of a family of models. Its sm factored under licence in Northment of a family of models. Its sm factored under licence in Northment of a family of models. Its sm factored under licence in Northment of a family of models. Its sm factored under licence in Northment of a family of models. Its sm factored under licence in Northment of the basic aircraft. Esquifo for the great succession of the basic aircraft of the company in the currently family of models. Its sm factored under licence in Northment of the basic aircraft of the company in the currently family of models. Its sm factored under licence in Northment of the basic aircraft. Esquifo factored under licence in Northment of the basic aircraft of the basic aircraft. The Bandelrante, Brazil's despite the company in the currently are the property of the basic aircraft. The Bandelrante of the basic aircraft and a Brazil's factored under licence in Northment of the basic aircraft. The Bandelrante of the basic aircraft and a Brazil's factored under licence in Northment of the basic aircraft. The Bandelrante of the basic aircraft and a Brazil's factored under

whose impetus grew out of the Brazillan military's anxiety for e nationally-owned manufactur-er, Embraer is firmly opposed to a strategy of self-subsistence.

Two-way street

"We must not aim at selfsufficiency, because inter-In 1985, with the first national commerce is a two-way deliveries of the Brasilia and street," its president recently the start-up of a large order told a leading Brazilian newstold a leading Brazilian news-paper. Indeed, the company is beavily dependent on imports from Egypt for the Tucano, the paper. Indeed, the company is company says it will see "an beavily dependent on imports important recovery." How it in certain key areas such as then builds on that recovery avionics and communications, will depend heavily on how Imports of equipment from Western manufacturers average between \$50m and \$65m a year, two-thirds of typical export earnings. Over one-third of the value of the Brasilia is im-

have been confirmed—from A long-standing relationship has been built up with Pratt and Whitney of Canada, for exmeanwhile, before the end of and whitney of Canada, for ex-the year Embraer and Short ample, for successive variants Brothers of Belfast hope the of its PT6A and PW115 turbo-Royal Air Force will have prop engines. These, Embraer selected the Tucano as its new says, are the best for its type

At lts aerospace park at Sao Jose dos Campos, in Sao Paulo State, there are two other small aircraft manufacturers, Nelva and Aerotec. Neiva, a wholly-owned subsidiary of Embraer, makes light aircraft, while Aero-tec is now primarily e parts supplier to Embraer.

Aerotec recently entered into a tentative joint production agreement with Siai Marchetti, a subsidiary of Agusto of Italy, to build two small military already.

to build two small military already.

craft. But the refusal of the financially bard-pressed Brazilian Air Force to place the necessary minimum order has shelved the project.

A similar fate may also befall the plans of Sikorsky of the U.S. to make helicopters in Brazil probably in association with Embraer. The Brazilian Air Force urgently needs a new helicopter, bot the resources to finance its construction are epparently not available at pre-

The only existing helicopter manufacturer in Brazil, Helibras, is a joint venture between Aerospatiale of France and the Minas Gerais State Government.

Satellite technology brings benefits

Japan JUREK MARTIN

JAPAN is pushing ahead with an ambitious space programme aimed at establishing its own

aimed at establishing its own technology and production facilities for satellite construction and launching.

Last month the Government's Space Development Council finalised details of a new Y200bn rocket programme, the "H2." According to the government's planning, the H2 will be ready for launching in 1991-1992 and capable of lifting a 2,000 kg satellite into year. 2,000 kg satellite into geo-

stationary orbit. The H-2 will be Jepan's most powerful rocket by o substantial margin. The standard satellite launch-vehicle currently used by Japan's National Space Development Agency (NASDA), the H-2 has a maximum satellite

payload of 350 kg.

Its immediate successor, the
H-1 rocket, is now under
development for planned
launches beginning in 1988 and will be capable of carrying a 550 kg satellite into geo-stationary orbit.

Major contractors

The H-2 programme is likely to provide major contracts for the big diversified Jopanese engineering concerns which have developed their aerospace capacity often in co-operation with U.S. manufacturers. The major contractors for the H-1 programme are Mitsubishi Heavy Industries, Ishikawajima-Harime Heavy Industries, Nissan Motor Company, Japan Aviation Electronics Industries, and NEC Corporation.

Whereas rockets up to and including the H-I have relied on U.S. technology from companies such as McDonnell Douglas Rockwell International, and TRW, officials in Tokyo claim that the H-2 programme mostly with military applications, of the basic alreraft.

The Bandelrante, Brazil's despite the potential demand in —even though some components first home-made aircraft and a Brazil it has not been a great are likely to be purchased from

cits with Japan.
The European satellite con-

sortium. Ariane/Aerospatiale, secured the belp of no less than four ambassadors last month to this year. lobby the Japanese Government into buying a weather satellite built by Aerospatiale of France and launched by Ariane.

own H-1 rocket.

European diplomats also said fuel-eff they wished the satellite proposal to be regarded as a "test-case" of Jopanese Government (JAD) willingness to buy cost-compe-titive major capital goods from foreign suppliers.

Neither the price nor the politics of the European pro-posal won over Japan's Foreign Ministry, which told the lobbying Ambassadors that satellites were an area in which Japan wished to substitute its own capability for foreign depen-

dence.
A Science and Technology
Agency official recently said
that Japan's desire to be inde-A Science and Technology Boeing and will be actively involved in planning and marketthat Japan's desire to be independent of foreign setellites was motivated by more than strategic considerations. He added that Japan was dissatisfied with the poor record of foreign satellite technology and believed it could make more reliable enumerativels.

Boeing and will be actively involved in planning and marketing. The partnership will not necessarily result in e major manufecturing project, however. It is starting off at the feasibility study stage.

But it enjoys the high expectations of its Japanese investors and of the Ministry of International Trade and Indus-

A significant aspect of Japan's planned emancipation from U.S. technology is that it could the cease to consider itself restricted by U.S. views in respect of launching satellites for third countries or exporting satellite technology and equipment.

Japan's wish to develop its own satellite technology is causing some grumbles among trading partners who see aerospace as one of their few opportunities to redress their otherwise large bilateral trade deficits with Japan.

orbiting space station. Mr Yasuhiro Nakasone, Japanese Prime Minister, is said to be enthusiastic obout Japanese participation in the project.

Japan expressed positive Interest in, but not n formal commitment towards, investing in the space station, when Mr James Beggs, chief of the U.S. National Acronautics and Space Administration, visited Tokyo last March.

If Japan does take a slice of the project, its investment towards in the space station. Mr Yasuhiro Nakasone, Japanese Prime Minister, is said to be enthusiastic obout Japanese participation in the project.

Japan expressed positive Interest in, but not n formal commitment towards, investing in the space station. Mr Yasuhiro Nakasone, Japanese Prime Minister, is said to be enthusiastic obout Japanese Prime Minister, is said to be enthusiastic obout Japanese Prime Minister, is said to be enthusiastic obout Japanese Prime Minister, is said to be enthusiastic obout Japanese Prime Minister, is said to be enthusiastic obout Japanese Prime Minister, is said to be enthusiastic obout Japanese Prime Minister, is said to be enthusiastic obout Japanese Prime Minister, is said to be enthusiastic obout Japanese Prime Minister, is said to be enthusiastic obout Japanese Prime Minister, is said to be enthusiastic obout Japanese Prime Minister, is said to be enthusiastic obout Japanese Prime Minister, is said to be enthusiastic obout Japanese Prime Minister, is said to be enthusiastic obout Japanese Prime Minister, is said to be enthusiastic obout Japanese Prime Minister, is said to be enthusiastic obout J

the project, its investment could be as much as Y300bn. Further indications of Japanese intentions are expected later

Crucial step

Meaowhile, Japao's civil avia-The European consortiom tion industry has recently wanted to fill a "slot" in taken what may prove to be a tion industry has recently wanted to fill a "slot" in Japan's satellite programme for a 1989 launch. It argued that it could supply and launch the satellite for about Y14bn, compared with what it claimed bevelopment Corporation, a would be a Y20-21bn bill for Japan's own plenned launching of a satellite built by Hughes Aircraft of the U.S. under prime contractorship of Nec Corporation partner Boeing of the U.S. in the development of a new tion ond launched by Japan's the development of a new generation of smaller and more European diplomats also said

> Japan Aircraft Development (JAD) elready co-operates with Boeing in the production of the B767 airllner, to which it subscribed 15 per cent of develop-ment costs and for which it supplies 15 per cent of the parts. The Japanese consortium had no project management role, bowever.

> JAD is committed to a 25 per cent stake in whatever emerges from the new parinership with Boeing and will be actively in-

equipment itself.

One plece of foreign technology that does whet the Japanese appetite, however, is the proposed U.S. permanently its most bopeful prospect.

Introducing a new aircraft so efficient, it outperforms even the world's best-selling business jet.

For years, the Cessna Citation II has reigned uncontested as the world's best-selling business jet. Since 1981 alone, it has outsold its nearest competitor by nearly 85 percent. All with good reason, of course. No other business jet has ever matched its ability to convey eight passengers as comfortably, as far, as safely, and as economically. Introducing the Cessna Citation S/II. It surpasses the Citation II's performance. And by a dramatic margin. It flies significantly faster, and farther, while carrying a greater payload.

The new Citation S/II: "S" for superior performance. The Citation S/II can transport eight passengers 1,955 miles, at a fuel cost of just \$.08 per seat mile —a fuel thriftiness that rivals e turboprop.

It requires less runway length than any

other corporate jet — with the exception of the Citation I — thereby granting you access to far more airports than possible with other business jets.

Performance of this calibre is in itself impressive. But when combined with a cabin as large and richy appointed as the Citation S/II's, it eclipses its competition.

Superior aerodynamics. The Citation S/II's performance relies on combined benefits of the most advanced airfoil and turbine

benefits of the most anvances alribit and turbit engine technology.

We incorporated the very latest supercritical technology into the Citation S/II's wing, and then subjected it to endless hours of wind turnel testing.

The result is an ainfoil ideally contoured to maximize lift and fuel

capacity while minimizing drag.
We enhanced the time-tested Pratt & Whitney JT15D Original Citation II New Citation 5/II

1,955 miles (1,700 nm) Bange (8 pes 2,070 miles (1,800 mm) 1,907 miles (1,658 am) 1.150 lbs. 1,450 lbs. 79 cu. ft. 13,500 Pbs 14,900 lbs

powerplants with more thrust at higher altitudes.
The result? Citation S/II's
403 kt (464 mph)
cruise speed is substantially faster than that of

the Citation II. And at ,826 nm (2,100 sm) its ull-fuel range is far greate

Superior comfort. There are so-called efficiency jets which approach the Citation S/II in range and payload. But they carry a much higher price tag. And



fully short of the Citation S/II in cabin size, comfort, and baggage capacity.

The Citation S/II is e true eight-passenger cabin in every sense of the term. All eight of its passengers enjoy ample cabin space. Each sits in a wide, luxurious seat that not only reclines, but tracks fore, aft, and laterally.

And a full 850 pounds of baggage can be loaded

Superior flight control systems. The Citation S/II's flight deck is everything you would expect in a newly-designed jet.

Its instrumentation is state-of-the-art, with an

in the large external baggage compartments with-out disturbing a single passenger.

available Electronic Flight Instrument System from Sperry—a navigation system more advanced than you'll find in most airliners.

A superior investment. At just under \$2.7 million US, the Citation S/II is priced \$1 million below its nearest competitor.

That, in itself, makes it an attractive investment. But when you consider the capabilities the Citation S/II offers and its

dramatically lower fuel and operating costs, it becomes clear that this is a intly superior investment.

For a brochure, and detailed information on acquiring a new Citation S/II, simply contact

Cessna Citation, Executive Jet Centre, Heathrow Airport-South, London TW6 3AE. Telephone: (0) 1-759-2814/5/6. Telex: 896015 Cessna G.



Tucano: Jet-like training at turboprop costs.



The EMB-312 Tucano has been designed from the outset to simulate a jet, although retaining turboprop low purchase and operating costs.

The jet atmosphere starts in the cockpit: excellent visibility for both student and instructor, thanks to the single-piece canopy and staggered-tandem seating, Martin Baker ejection seats, air conditioning, full blind-flying

But jet-like handling is the Tucano's strongest feature: the airframe is an all-new design married to the 750

instrumentation and NAV/COMM

equipment.

SHP PT6A-25C turbine to render jet-like characteristics. A singlelever controls both engine power and propeller pitch, acceleration at take-off is brisk and initial rate of climb exceeds 3000 ft/min, while level cruise speed reaches up to 250Kt. Precise and crisp controls in a +6G and -3G airframe enable very sharp hesitation rolls and simulate the powered controls of an operational jet. The Tucano covers a wide training syllabus, from primary through basic, up to advanced and weapons delivery stages, and can carry up to 2200 lb. (1000 Kg.) of ordnance at four

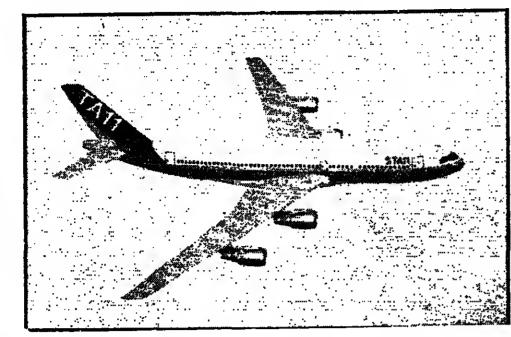
underwing hard points.

These are some of the features that prompted the Royal Air Force to place the Tucano on the short list of 4 contenders for the replacement of the Jet Provosts.

For further information: CSE Aviation Ltd. - tel. (86-75) 4321, telex: 83204 - Oxford - England or Embraer (Brazil) - tel. (123) 22-7070, telex: (391) 1133589.



The European Airbus Industrie TA-11 fourengined airliner project is aimed at providing an aircraft capable of flying long distances with smaller payloads than those carried by the bigger 747 Jumbo iet. As such, it could be used on routes to such countries as Australia, South America and in the Far East, where long range is required but where traffic densities may be low.



Seeking to extend skills

Australia MICHAEL DONNE

ALTHOUGH the Australian alr-craft industry is relatively small, it is well skilled in modern aerospace techniques.

This knowledge has been derived not so much from the limited production of indigenously designed aircraft but more from the extensiva experlence in sub-contract, com-ponent manufacture, overhaul and other support work for a wide variety of foreign-designed

and other support would and other support wide variety of foreign-designed civil and military types.

The Australian industry's seas countries.

The Australian industry's seas countries.

Hitherto the industry has been involved primarily in subject to the substantial workloads likely to occur in utility aircraft, in various civil and military versions, bas been one of the major products in three main.

Corporation, of Port Melbourne, Victoria, currently a primary supplier of equipment and ser-vices to the RAAF;

The Government Aircraft Factories, of Fishermen's Bend, Victoria, responsible for the Nomad light transport aircraft, and manufacture of parts for overseas civil aircraft such as the F-28 Fellowship and also for military aircraft used by the RAAF:

Hawker de Havilland Austra-lia, of Bankstown, New South Wales, primarily involved in the provision of sub-contract manu-

and the U.S.

An incentive for this policy is the knowledge that Japan and countries in South-East Asiacountries in the Industry South Asiacountries in the Industry South Asiacountries in the Industry South Asiacountries and South-East Asiacountries in the Industry South Asiacountries and South-East Asiacountries in the Industry South Asiacountries in the Industry South Asiacountries and South-East Asiacountries in the Industry South Asiacountries and South-East Asiacountri

After launching the A-10, the Australian Aircraft Consortium submitted to the RAF in Britain its ideas for a new version, the A-20 Wamira II, as an entry for the RAF's own basic trainer competition to find a successor to the ageing Jet Provost.

Decisions. The Wamira II is now one

of four aircraft on the RAF's short list, although neither that aircraft nor its predecessor A-10 have yet flown: Serious discussive serious discu sions on its possible procure-ment and production are in progress, but no final RAF decisions have yet been taken. As part of the Australian plans, extensive discussions have been held with Westland of the UK with a view to West-land understains production of land undertaking production of the Wamira II in England if that aircraft is selected for the RAF. Westland Itself, anxious

to expand its own markets in the Far East and South-East

The Commonwealth Aircraft canada PT6A turbo-prop, is due also envisages the Westland 30 to be rolled out later this year as having a major role in Australian military and civil and to fly early next year, with Australian military and civil as the RAAF in activities as well as heing 1987 marketed throughout the Far East.

Earlier this summer a new joint company, AAC-Westland, was set up in the UK with a view to exploiting these ideas as well as heing responsible for Wamira II production if that aircraft is selected for the RAF.

one in participating in other important new international civil airbat craft developments, including a small stake in the A-320 Airbus. An agreement on A-320 work was recently signed with Britisb Aerospace. The industry is also being wooed by the U.S. with a view to participation in future civil aircraft manufacturing programmes.

The experience already gained by the A-320 arrangement of the U.S. Air Force in 1942 as an overhaul base and did anot resume making aircraft of the war.

Prove

By last year it had built fin about 340 of indigenous design sow with salae wi

is also being wooed by the U.S., with a view to participation in future civil aircraft manufacturing programmes.

The experience already gained by the Australians in making parts for overseas transport aircraft, such as the Dutch Fokker F-28 Friendship and the Boeing 727 jet airliner, will serve the industry well in the agreement to build parts of the Airbus A-320.

The size of the Australian industry's stake in that venture is small, perbaps no more than

is small, perbaps no more than 2 to 3 per cent, but it will nonetheless be significant in helping the primary manufacturer to win sales in the Far East and

Seeking an export business

India JOHN ELLIOTT

INDIA is exhibiting alreraft at Farnborough for the first time in 12 years. Two trainers, including the HTT 32 turbo-prop, which made its maiden flight last month, will demonstrate the country's determination to prove intarnationally that it can

prove intarnationally that it can design, develop and make its own aircraft.

This capability is about to be tested to a greater degree than ever before on a new light combat aircraft project to be started soon for the 1990s, probably in collaboration with Western European companies. Western European companies. The exhibits, ataged by India's public sector manufac-

turer, Hindustan Aeronautics
(HAL), will be more for
prestige than sales.
India is not in the export

husiness yet, although last year it won its first significant order. It sold eight of its Chetak heli-copters (the French Alouette III made under licence) to the Soviet navy, and is hoping to sell more.
The Indian aerospace industry

range of aircraft and aviouics as well as equipment for the country's own space programme

gramme.

HAL employs 40,000 at eight locations and is the major organisation involved. Founded in 1940, it built its first aircraft

an its ability to design and produce to defence equipment.

But other pressures get in the way of this ambition. In particular it is determined to equip itself as fast as possible with modern weapons, especially now that the U.S. is strengthen.

2.893 bave been Indianised on the Mig 21s.

Now it has finalised arrangements with the Soviets to start assembling the Mig 27 airframes at its Nasik plant, north-east of Employed Bombay, and engines at Koraliput, in the eastern state of put, in the eastern state



Final assembly of a Jaguar jet strike aircraft of the Indian Air Force at the Bangalore plan of Hindustan Acronantics, HAL undertakes the licence production in India of the Enropes (Sepecat) designed Jaguar

meet the country defence requirements.

There is also always the counter-attraction of buying "off-the-peg" from the Soviet Union on very cheap terms. The Soviets have opposed India's defence purchases from Western Europe in recent years.

India is now believed to be finalising the purchase of Soviet Mig 29 fighters and has its eye on the Mig 31. It has been making Mig 21s since 1963 and in the "Bis" version since 1976.

aircraft made in Britain and the assembly, with progressive indigenisation, of a further 76 in India.

By 1987-89 it is planned to produce the final 31 Jaguars with almost every component made in India.

Option:

With these Russian and the assembly, with progressive indigenisation, of a further 76 in India.

By 1987-89 it is planned to produce the final 31 Jaguars with almost every component made in India.

Option:

With these Russian and the disgenisation, of a further 76 in India.

By 1987-89 it is planned to produce the final 31 Jaguars with almost every component made in India.

Option.

Rs20bn (about £1.30m). The annual value of production rose from Rs 980m in 1973-74 to Rs 3bn in 1982-83.

As a developing country conscious of its role as a major power in the Indian Ocean region, India wants to prove its ability to design and produce defence equipment.

is slowly huilding up. Four the labelled "indian" although development work will be done altraft were produced at altraft were produced at altraft were produced at development work will be done altraft were produced at altraft were produced at development work will be done altraft were produced at altraft were produced at development work will be done altraft in both countries with exchanges of staff.

But the most ambitious prostruct aircraft fast enough to meet the country defence the country defence with the delivery of 40 ment is combining all its various aircraft made in Britain and the research and production facilities. For

assembly, with progressive in-digenisation, of a further 76

to manufacture the French Mirage 2000, having already pur-

chased 40.

India has recently completed

S. Afri

25-184,5-1

gas dely harr

fae 31 7:5%

Value Same

ACT 11

ides that reof

wil-neclear Bit

ment optimise

and siege Signal Land

STRANCE . man earthque piece - " ...

apell postpi 200

BC strike

ties, including universities, for the first time. It wants an aircraft to fly as a prototype in the early 1990s and to last for 20 to

early 1990s and to last for 20 to 25 years.

The Defence Ministry intends that HAL will collaborate with foreign companies for key parts of the development and is now studying proposals from British Aerpenae, Dessault of France, and MBB and Dornier of West Germany.

It will probably choose to collaborate next year on specific

laborate next year on specific items from more than one of these companies. It is also receiving blandishments from the Soviet Union which would prefer that India did not kink up

is inefficient or has production problems—says that more than 2,500 items out of a total of 2,893 bave been Indianised on the Mig 21s.

Now it has finalised arrangements with the Soviets to start assembling the Mig 27 airframes at its Nasik plant, north-east of Bombay, and engines at Koraput, in the eastern state of Orissa.

Meanwhile, its Jaguar output, in MBB of West Germany. It will begin taking shape.

India has recently completed these companies. It is also receiving blandishments from the caving blandishm

